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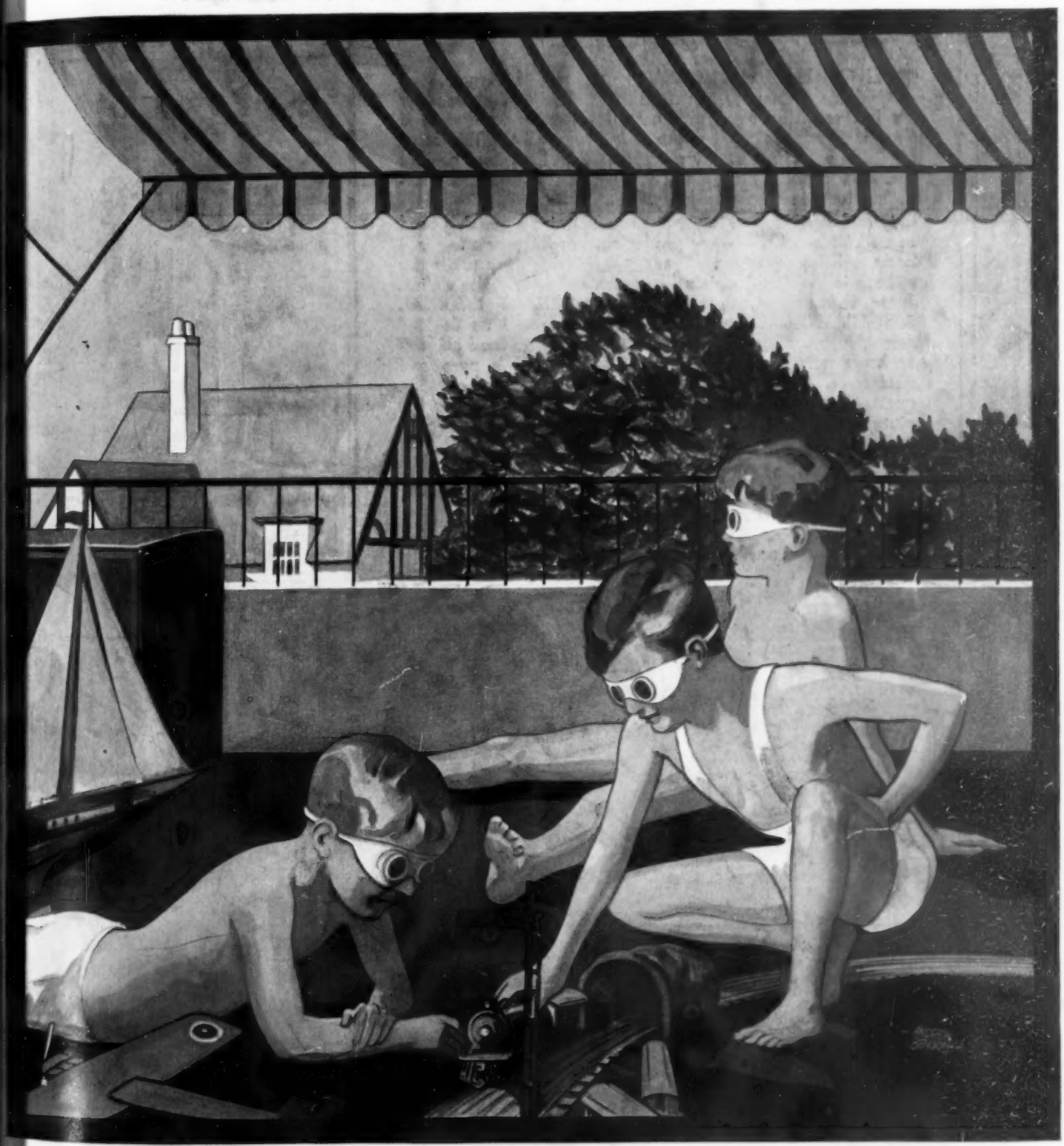
HYGEIA

The HEALTH MAGAZINE

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION



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Beginning –

A Series on Sex Education by Thurman B. Rice

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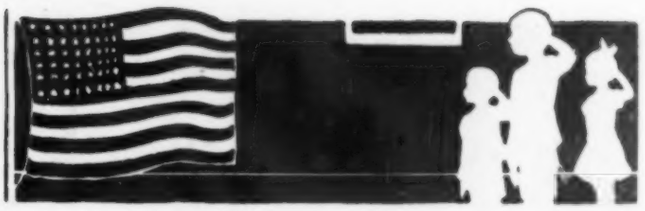
HYGEIA



THE HEALTH MAGAZINE

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Volume 11 JULY, 1933 Number 7

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CONTRIBUTORS TO THIS ISSUE

● A new series of articles begins in this issue with a discussion of the ideals and purposes of sex education. The author, DR. THURMAN B. RICE, associate professor of bacteriology and public health, Indiana University School of Medicine, is well known to HYGEIA readers. . . . PAUL H. STEVENS of the department of health, New Haven, Conn., contributes a Fourth of July story. . . . CURTIS BILLINGS of the National Safety Council discusses safety in the summer cottage, camp sanitation and other pertinent points for the vacationist.

● DR. SOLON R. BARBER, who is in charge of the information service, Federal Food and Drug Administration, answers the question, "Are Foods Truthfully Labeled?" . . . DR. HUGH ROBERTSON, St. Davids, Pa., explains what goes wrong with an appendix. . . . PHYLLIS JACKSON, New York City, describes "Safe Swims for Campers" and tells the results of a survey made by the Girl Scouts of America.

● DR. MARGARET WARWICK, Buffalo, reveals a fund of enlightening information on a subject that receives all too little consideration—"Why Should Postmortem Examinations Be Done?" . . . ALFRED E. PARKER, director of physical education, Berkeley (Calif.) High School, tells what it means to be "mentally healthy." . . . DONALD A. LAIRD is director of the Colgate University Psychological Laboratory, Hamilton, N. Y.

● DR. J. ARTHUR MYERS, chief of the medical staff, Lymanhurst School for Tuberculous Children, is professor of preventive medicine, University of Minnesota. . . . DR. EMIL BOGEN, Olive View, Calif., warns against a menace which is especially prevalent in the summertime—"The Dangers of Spider Bites." . . . OLIVE STUART, Vancouver, B. C., tells the adventures of "Six Year Old Bill in the University."

● DR. JULIEN DEAN, Freeport, N. Y., who writes on "The Dread of Mastoiditis," is an otolaryngologist. . . . F. C. KOCH is chairman, department of physiological chemistry and pharmacology, University of Chicago. . . . DR. SOL ROSENBLATT'S article, "Eye Hygiene—Eye Education," explains clearly and simply the necessity for eye education and the steps in that process.

● DR. P. M. ASHBURN, Colonel, U. S. Army, retired, discusses various types of parasitic worms. . . . DR. WILLIAM A. L. STYLES, Montreal, furnishes valuable information on the subject of hair. . . . MAE KELLY is affiliated with the department of physical education, University of Missouri. . . . DORIS W. MCCRAY, food consultant, contributes tempting and healthful recipes for use in the refrigerator, the "Guardian of the Family Health."

● IVAH SIMPSON'S "Beverage Twins" will bring joy to the hearts of boys and girls. Not only do they tell their story but they bring patterns for their clothes!

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July, 1933

EDITORIAL

EDUCATION IN SEX

TODAY it is becoming generally realized that education in biology is significant to an understanding of human life and is an aid to human happiness. Education in the mechanism of reproduction begins often in the nursery school, frequently in the grade school, but quite certainly in the high school, and it extends throughout the university curriculum. Education in matters affecting sex and reproduction has gradually evolved from early schemes which dealt wholly with reproduction in plants and in animals to later outlines of study which likewise begin with the lower forms of life but proceed eventually to the human being.

Every child and adult is likely to be fascinated by the story of life when it is told according to such a plan. The knowledge that some insects are born and live but a day but that the elephant and the torfoise may live hundreds of years and that there are trees which live thousands of years is a fascinating introduction to the story of the biologic cycle of man, which is three score years and ten. Every child is interested in the birth of chicks from eggs in incubators. In nursery schools, children watch with interest the career of the sitting hen and witness the birth of chicks. Such knowledge comes to the child naturally without emphasis on elements even slightly erotic or stimulating to pruriency. When the child's mind is able to appreciate the simplest facts of heredity and the transmission of unusual characters, it is likely to lend to this study far greater attention and appreciation than to the elements of mathematics or of sentence structure.

EVEN teachers of religion have seen from the first that there is no story or romance more fascinating to the human being than that of the organization of society around man and woman as the founders of the family. As H. M. Parshley points out in his recently published work, "The Science of Human Reproduction": "Whether we see our hero and heroine in the primordial Garden of Eden, innocently surveying a new Creation, or in the modern Soviet State, confidently facing a new Society; and whether we find them dramatically confronting the world or each other—whatever the details of plot and setting, there is always the fundamental fact of sex, at once an element of easy familiarity and of mysterious challenge."

When it is recognized that science is truth and that truth is the ultimate goal of mankind, the importance of studying sex as a biologic phenomenon, even in the earliest years of life, must be realized. It cannot be explained by magic or mysticism or by pure reasoning any more than can the laws of mathematics, chemistry or physics.

WITH a recognition of the importance of these aspects of this fundamental subject, HYGEIA begins in its current issue a series of articles on the subject of "Sex Education." The writer of this series, Dr. Thurman B. Rice, professor of preventive medicine in the Indiana University School of Medicine, is at the same time the author of a series of five pamphlets circulated by the American Medical Association and reviewed in the June issue of HYGEIA. The pamphlets are designed for reading by boys and girls at puberty and in adolescence and by young men and women approaching marriage. The series of articles which begins in this issue of HYGEIA is designed primarily for adults so that the parents and teachers who are concerned with disseminating to children information concerning the problems of sex in relationship to life may do so in an enlightened manner.

DR. RICE recognizes that young people today are demanding positive education and will not accept simple negation. It is important that parents and teachers should be able to supply them with the information they request, since such education comes best of all from the parents and secondarily from the physicians and the teachers. Dr. Rice departs in his consideration of the subject from the mysticism which surrounded previous attempts at education in this field. He speaks plainly but in a tone that could not possibly offend the most sensitive literary or refined taste. In this discussion, sex is considered only as a scientific subject which is a part of life itself.

Sex Education

I. IDEALS and PURPOSES

By

Thurman B. Rice

A FACT OF GREAT significance in human existence and, indeed, in all life is sex. "Male and female created He them." The continuation of life itself is directly dependent on the functioning of these instincts which bring men and women together in an infinitely important relation known as the family or the home and into which are born other human beings like themselves. Sex is everywhere about us. We see it in the clothes we wear, in the occupations we serve, and in the sports and games by which we seek relaxation. Short stories, novels, poetry, art, sculpture, music and the drama constantly remind us of the fact that men and women are different and that they behave as they do largely because of that difference. If we would know what it is that motivates men and women, and boys and girls; if we would understand the psychology, the hopes, the desires, the emotions of our neighbors; if we would know what it is that makes one man a hero and another a beast, we shall do well to look into this potent matter of sex. Sex is omnipresent; it touches us from a dozen angles.

There are, indeed, a great many people who regard sex as a necessary evil at its best and tolerate it only because they cannot abolish it altogether. Somehow or other, they have built up the concept that sex is something to be avoided as one would shun vulgarity and indecency. They see even in motherhood an episode that is carnal and worldly. They are absolutely wrong! Every phase of sex is really beautiful when it is properly understood. Nearly all the most beautiful concepts and tender emotions are rooted deeply in this relation which springs from the heart of mankind. From it directly come most of those finer elements which make life worth living and which inspire it with a purpose. I myself would not care to live if I might not have known the love and protection of father and mother, or could not enjoy every day the love of wife and children.

Is it not strange, then, that there should be so much misunderstanding of this vital subject? Is it not amazing that intelligent men and women should be in so many instances utterly ignorant of the true significance of this basic fact of life? Who would believe that such a subject could be regarded as vulgar and unfit for the ears of innocent children, who are themselves the direct result of the functioning of this system? How is it possible that thinking people could be so foolish as to permit young people to assume the most important relation in life without one word of proper instruction on the subject? How long will we permit sex instruction to be picked out of the gutter?

There are many reasons why every child and every adult should understand as well as possible the various complicated functions by which the race reproduces itself and by which the family comes into existence and is held together as a unit. How this information may be transmitted correctly and decently to the younger generation is a problem of the utmost conse-

quence. In this introductory article I shall endeavor to make clear my own philosophy concerning sex and to set forth the ideals and purposes to be attained in sex education.

These articles are intended for adults. Certain pamphlets are available for the use of children and young people, but they are published separately and are sold through the American Medical Association to those who wish literature to be placed in the hands of the young people themselves. The problems herein considered are too complicated and mature for those who have as yet no need for the consideration of them, and who in all probability will be better if not too early stimulated in matters pertaining to sex. In this series I am concerned first with the education, or possibly the reeduction, of the adult. The adult, after thoroughly mastering the principles of the subject, may then undertake the education of the child. Parents, prospective parents, teachers, scout masters, ministers, physicians, and all those who may have to do with the training of boys and girls may well "study to show themselves approved" in matters pertaining to this subject.

It is not my purpose to present a mass of scientific detail but rather to lay the foundation for a sound attitude toward matters pertaining to sex. The layman needs comparatively little detailed information concerning the minutiae of the process of reproduction. He needs rather a broad understanding of the general principles involved. He should regard the understanding of sex as being of the nature of an art rather than a science, the science being needed only that he may better practice the fine art of living broadly, deeply and well. Sex and life are inseparable; each is the origin and the end of the other. Happy is the man or woman, the boy or girl, in whom sex is merely a well rounded part of the whole purpose and philosophy of life.

In writing these articles I make no apologies for the Creator or for Nature. There are those sacrosanct individuals who seem to think that they could have done much better themselves, but I am not one of them. They feel obliged to apologize for certain phases of the subject which seem to their pure minds to be low and crass. I believe that every phase of sex can be equally pure and chaste. If the love of a mother for her babe is pure and beautiful, I believe that every act by which that babe came into existence is pure and beautiful, provided the parents entered into the conjugal relation in the proper spirit of love for each other and respect for the tremendously significant process of which they were a part. Sex is exquisitely beautiful; it is indispensable to life, civilization, culture, every one of the institutions, and, indeed, to everything that is of importance to man. It surrounds us on every hand and cannot be ignored except by those who are wilfully blind. Unless prostituted for purposes for which it was never intended, it is utterly faultless. It is the cement that binds society together. It adds enormously to the richness and meaning of life.

Unfortunately it has been much misunderstood. Sexuality has been confused with sensuality. A mere incident in the program—an incident that corresponds to the carrying of the pollen by the bee—has been regarded as the whole program. It has been supposed that sex is selfish and seeks only its own gratification; but actually nothing is so unselfish as the love of a mate for a mate or that of a parent for a child. It has been said that sex has ruined many a man or woman, but it has been forgotten that it has brought out the best that was in countless millions of others. It has made men and women of foolish boys and giddy girls. Sex can inspire an ordinary swain to poetry; it makes heroes of us all when our children or loved ones are in danger.

In the open discussion of a subject of this sort in a magazine of this kind I find myself hemmed in by barriers which are not to be taken lightly. Taboos and limitations of speech make it hard for one to express oneself fully. I am anxious not to desecrate so holy a thing as I conceive this subject to be. I am tremendously concerned that I may develop the subject rather than merely expose it. It is an inexcusable mistake to jerk the veil so ruthlessly aside that the vulgar may ravish the exquisite beauty of this thing which is the very core of our being. There are books and magazine articles on this subject that are read by lascivious persons who gloat over the paragraphs as they would over the most obscene

story that might be found in the cheap magazines which are on sale everywhere. I shall be bitterly disappointed if the tone of this series of articles does not abash any who read except with the noblest of purposes.

Words in this series will be used in the most tactful manner possible, but they will not intentionally be disguised or garbled in such a way as to leave the meaning in doubt. Those things that need to be said can be said with dignity; those that need not be said will be left unsaid. The truth needs no apology and desires none.

There are already many books and pamphlets on the subject. He who presents another should give a reason for doing so. I have been contemplating the writing of such a series of articles for a long time because it has seemed to me that most of the articles have missed the kernel of the whole subject.

There are those books, for example, which attempt to frighten the child or the adult into the ways of righteousness. The venereal diseases are described in the most appalling terms; the dangers of the various abuses of the sexual function are detailed before the proper functions and uses are explained. One might just as well tell children not to put beans in their noses! It must be set down to the everlasting credit of the present generation that it is not afraid. Hell fire and brimstone have lost their deterrent effect. The author of "Green Pastures" expressed the situation exactly when he had "The Lawd" tell "Gabriel" to put the thunderbolts back in the box, because "this generation ain't afered uv 'em."

The young people of today are demanding a positive education. They will not take "don't" as a rule for conduct. If "mother knows best," they think that mother should be able to give a reason for thinking that she knows best. Negative education tends to produce a pedagogic vacuum which will speedily be filled with something good, bad or indifferent. When the minds of children and those of adults too are loaded high with positive facts and principles based on the assumption that sex is natural, good, beautiful and entirely proper, no danger needs to be feared from the untruths and half truths which may otherwise be so disastrous. Once the mind is filled with pertinent facts, it is satisfied and goes about its legitimate business untempted by morbid or lascivious curiosity. It is indeed preferable to have children turning toward the beauties of virtue rather than to have them hastening from or toward the ugly, though sometimes not so ugly, mien of sin.

Particularly is it important that the child should never be frightened when the subject of sex is discussed. The method of imparting sex education whereby the mother calls the child to her side and tells him or her that she went down to death's door in order that the child might be born is most vicious. Children cannot understand the fact that suffering and sacrifice may make a thing precious. The normal child may be told that the benefits of a dental operation are immeasurable, but the fact that "it will hurt" outweighs for him every conceivable gain. The mother who associates sex with pain is often laying the foundation for an unsatisfactory or even a dangerous attitude toward life. Likewise, the parent who makes the subject ugly or disgusting or vulgar is injuring the child instead of helping him. Some suppose that it is necessary to do this in order to guard the virtue of the unmarried young person. Virtue is far better guarded by those who have a thorough understanding and appreciation of its worth.

Then there are certain pamphlets and books which are so "goody-goody" as to be utterly disgusting. Sex is a real thing; it throbs with high passion; it lives and loves and fights; it is a giant who constructs or destroys, makes or breaks, according to whether or not it is understood. Pink pamphlets for pale people will hardly serve the needs of the robust men and women who make the world go around. One might as well say "naughty, naughty" to a hurricane as to prescribe certain anemic books as a means of helping young people to control the forces which surge within them. Most publications of this sort have been written by persons who have never known the force of passion or who, having seared themselves in its flame, are now devoutly wishing to save the young people from what "I have gone through." The services of such persons are not needed in the present purpose. This is a task for men and women who have felt the divine urge to create, have gladly accepted the challenge and have never betrayed the trust.

Other books have overdone the task to which they were assigned. In these days of devastating frankness it is easy to overrun the limits of propriety; and as a result, sex has frequently been ruthlessly stripped of every vestige of covering and has been pushed before our astonished eyes utterly nude. It is quite unnecessary and wrong to do this. The intimate personal relations of man and wife need not be accurately described except in books for the medical profession or possibly in a few other instances, which will be described elsewhere. It must never be forgotten that the soft light of the moon is infinitely more effective for the purposes of romance than is the glare of the noonday sun. Love is something entirely too fine to be dragged out for the public to gape at. In our zeal to drive Prudery from our midst we shall make a great mistake if we bespatter genuine Modesty.

Still other books are far too detailed and scientific for the purposes of the layman. Why should elaborate drawings of the reproductive organs of the male and the female be used, with enormous names for every little part? The layman will not be doing surgical operations which would require such knowledge. He needs general principles rather than details; he needs a philosophy which will help him to evaluate things rather than an impersonal science which emphasizes everything equally. After all, there is nothing so unscientific as the scientific piffle which so often passes for the real thing. Science is science only when it is pertinent, and it is not pertinent that the layman should be loaded with a mass of detail which is of no value to him and may actually be a menace because he supposes that, knowing such stuff, he really understands the whole problem.

On the other hand, there are sources of information which are so inadequate as to be utterly worthless. This subject is far too large to be discussed in a few pages. Many articles are faddy, or obviously written by cranks or quacks. Not a few have been written for the purpose of selling some medicine, contraceptive device or similar product. Some apparently have had an eye to the biggest possible sale, and for this reason they have been made as spicy as is permissible. These sources of information should be utterly disregarded.

It is usually a mistake to write for a particular group of persons. Sex is a unit; it cannot be really divided, though there are times when one must make arbitrary divisions. In a few instances, as when it is desired that inexpensive pamphlets may be supplied at the lowest possible figure or when it is feared that some one may be offended by some phase of sex which is not a part of the immediate problem, it is permissible to publish separately pamphlets for different ages and sexes. In the main, however, the day when "What a Young Man Should Know" and "What a Young Woman Should Know" were proper divisions is definitely past. Young men and young women should know the same thing. After several rather embarrassing experiences I have resolved never again to speak on sex subjects when the talk has been announced "For men (women, boys, girls) only," except when the circumstances are the natural outcome of a logical situation. In my experience it is far better to talk frankly to a mixed group of high school students than it is to segregate them and to get every one ablaze with curiosity as to what is being said to the other group.

It is natural for all of us to wish to come as quickly as possible to the point that is troubling us. Mothers are wanting a book or an article which will tell them exactly what they shall teach a 5 year old boy and a 9 year old girl. Certain books give the lessons to be presented on the occasion of each birthday, beginning with a child of 2 and continuing until grown. How ridiculous! One cannot forsee what questions even one's own children may ask. How, then, can any one tell the anxious mother how to answer the questions that may be in the mind of her inquisitive youngsters? Any one who attempts to do so is quite without understanding of the subject and of child nature. Sex is the most natural subject imaginable; for this reason it must be taught naturally. I have no use for the book that handles it as an arbitrary subject to be assigned as if it were arithmetic. After criticizing so severely the writings of others I must make it clear that good books are to be had.

I shall make no attempt to anticipate the questions which some bright-eyed child may ask. I merely hope that I may be of aid in preparing the parent so thoroughly in the basic principles of the subject that he or she may be able to feed and to satisfy the perfectly natural childish curiosity which brings a child to his parent with vital questions. Possibly the vocabularly that I use may be of value, as the lack of the proper word to use is often a serious difficulty. The method of approach may be of value to some who know well enough the subject matter but not the pedagogic methods for putting it across. The parent need not expect to learn or build up a philosophy of sex and life in a moment. He will need to study long and seriously before he can be skilful in the handling of so delicate a matter.

It must be borne in mind that unless the parent has had a reasonably satisfactory understanding of, and attitude toward, the subject, he can hardly expect to become expert in teaching his children concerning it. This is a subject which should be taught by example as well as by precept.

[NOTE.—In the August issue, Dr. Rice will discuss "Reproduction in the Plant and Animal Kingdoms."]

A CENTURY OF PROGRESS IN MEDICINE

Exhibited by the American Medical Association

The panel above contrasts medical practice in 1833 with that of 1933. Methods of communication and of transportation were slow and crude; the conveniences and facilities of today were lacking in 1833. What progress in a century!

The dynamic portrayal of medical training in the arrangement to the left is a part of the American Medical Association Exhibit in the Hall of Science.

A century ago hospitals were used mainly for the incurable, the demented and the pauper. There were no trained nurses, no asepsis, no anesthesia.

THEN very few people used the hospitals when sick, and then only as a last resort
TODAY every four seconds, night and day, a patient enters a hospital in the United States

The lower part of the diorama offers another contrast between the hospital of a century ago and the modern hospital with its imposing entrance.

LIVE STATISTICS

By Paul H. Stevens

One after another, in they marched—live statistics, rousing the aldermen from their lethargy.

"I WOULD take oath that Alderman O'Brien went to sleep while I was quoting those statistics at the hearing a year ago." Bill Bowman, secretary of the Fairmount Chamber of Commerce, sat talking with his friend Abel Brown, head of Fairmount's health department, in Dr. Brown's office on the fourth floor of the municipal building. It was true. Alderman O'Brien had been lulled into a brief nap at that hearing the February before when once again an attempt had been made to adopt an antifireworks ordinance.

"Yes," agreed the doctor, "it seemed useless to try to interest the committee or even keep them awake. And we are no better off this year."

"Now that Antonio Blasio has been elected from the eighth ward, it looks as though we will have a harder time next Friday night than we did last year," Bowman continued. "Alderman Blasio is pretty close to those three fireworks manufacturers out in West Fairmount, and they will be heard from, count on that, when it comes to forbidding the sale of fireworks within the city limits."

"But we have made an exception for feast days and celebrations," said the health officer. "It is only to cut down the deaths and suffering which come each Fourth of July that we ask this ordinance."

"The Fourth of July sales make up their heaviest business," replied the young Chamber of Commerce official. "We have data in our files to show that their turnover before Independence Day runs well into five figures. They won't give that up without a fight."

Secretary Bowman arose, and taking his hat and overcoat from the back of a chair, prepared to leave.

"Cheer up, Abel," he said, "it may take years —and it probably will—but, mark my word, that ordinance will become a law in Fairmount some day."

After his friend had left, Abel Brown, M.D., sat silently at his desk with charts and statistics grouped before him. From these his eyes turned to the window and out across the parkway to the snow-covered square beyond. His thoughts returned to the statistics while his eyes followed the soaring of the pigeons against the background of blue sky.

Tuberculosis, diphtheria, typhoid, all the preventable diseases had continued on a downward sweep as he and his energetic staff of workers had carried forward their winning battle during the last few years. But the mounting death and accident list of the annual summertime carnival of madness had remained a sore spot.

He remembered his first summer in Fairmount. His thoughts turned to the July night that had marked the agonized death that tetanus had brought to a 6 year old boy. Abel Brown had seen the little fellow die that night in St. Peter's Hospital. From that time on, tetanus antitoxin was always available at the board of health laboratory or in the refrigerator in police headquarters. But the maiming and the suffering from Fourth of July accidents had increased with each passing year.

As he sat watching the pigeons in their graceful movements above the parkway, he thought of Lakefield, Wheatford and one or two other neighboring cities which had adopted antifireworks ordinances and had met with great success. It had begun to look as though Fairmount would go on forever without such protection.

He drummed impatiently on his desk with the rubber end of his long yellow pencil. His eyes left the snow-covered vista, above which fleet pigeons traced streaks against the February sky, and he glanced at the calendar pad there on the desk beyond his charts and data.

"Tuesday, Wednesday, Thursday, Friday," he mused. "Four days before the hearing. Then

nothing but the same old statistics to lay before the committee."

How like the figures of last year they looked in cold typing before him. A longer list, that was all.

"One death from blood poisoning following amputation of an arm.

"Forty-two cases of injuries treated in Fairmount Hospital and more than half of them classified as serious.

"Five cases each in the smaller Good Samaritan and St. Peter's hospitals.

"Forty-three physicians, replying to a questionnaire sent to 147 doctors of the city, reported treating 102 patients who had fireworks burns and injuries. Six cases were listed as severe, twenty-five moderate and seventy-one mild."

"Surely," thought the young health officer, "these statistics should convince. What pain and suffering they represent! What horrible examples!" But his musings went no further. He exclaimed aloud, "I have it," and reached for his telephone.

The next morning ten nurses from the department of health left the municipal building bent on secret missions. For twenty minutes they had been closeted with the health officer. With him they had gone over newspaper clippings, some of these beginning to turn yellow from long saving. "Examples," he repeated at the conclusion of their session, "horrible examples."

From the office they had gone down to the main floor in the elevator. On the streets they separated. Singly they traveled into the slums and out on the hill, over by the river bank and down on the plain.

Friday night came, and the aldermanic committee was ready for the hearing. Even Dr. Brown's close ally, Secretary Bowman, knew nothing of the secret missions of the ten health nurses. As officer of the chamber of commerce sponsoring the petition, Secretary Bowman prepared to read what had become an annual utterance, a sort of premature Fourth of July oration, delivered five months in advance.

The aldermen had seated themselves around the oblong table at the front of the large room. Chief of Police Daley and Fire Marshal Kinsella were down near the front ready to add their arguments later in the evening. Two reporters arrived late and noisily took seats beyond the committee's table. All concerned were presently on hand excepting those most concerned, and yet paradoxically the least concerned—the general public. Chairman James Doohan rapped for order, and Clerk Stan Konecki stood and read the roll.

Secretary Bowman took the floor. "Gentlemen," he began, "you have before your committee tonight a petition, a petition which is sponsored by your chamber of commerce, a petition endorsed by your health, police and fire departments and"—here he gave a sweeping gesture in the general direction of the empty chairs in the rear of the chamber—"a petition supported by the general public of our fair city.

"Each year the celebration of the anniversary of our nation's birth brings its toll of death and accidents. We have prepared for your consideration tonight a few statistics."

Alderman O'Brien yawned, settled back in his mahogany arm chair at the end of the oblong table and closed his eyes, but only, indeed, for a minute.

There was a thumping of wood on wood in the corridor, and through the doorway came a one-legged youth on crutches. Beside him walked Miss Ann Kelly, a public health nurse.

Secretary Bowman cleared his throat and went on with the reading of his statistics. Exactly one minute later there was more noise out in the corridor, and through the doorway came Miss Jane Daley, another health nurse. She was leading a child by the hand, a little girl, blind and with disfigured face.

"And, gentlemen of the committee, to continue with these statistics," the Chamber official added, but another minute had elapsed and there was more commotion in the corridor. This time Miss Ruth Palotti, school nurse, entered with a little 6 year old fellow in her arms. One leg was missing.

Alderman O'Brien was wide awake now. Not only he but also the other aldermen kept their

eyes toward the entrance to the chamber. Exactly sixty seconds more, and there came a youth with only one arm. Behind him at another interval of a minute was a child, a short stump impressing the upper part of the right sleeve of his small jacket.

This kept up for ten minutes. Ten nurses had performed their secret mission well. They had combed their districts for examples and had found them. There was Anthony Sitnick, who had had his leg amputated after a toy cannon exploded, July 4, 1927. Here was Rosemary Popolizio, blind since that giant cracker had gone off in her face last Independence Day. There, being interviewed by the two reporters, was James Goodbody, student in the law school, getting along well despite the handicap of one leg and crutches, which had been his lot since that July day twelve years ago when amputation had followed a powder burn. Yes, there were all these and more.

Then Health Officer Abel Brown, M.D., arose and addressed the committee. "Secretary Bowman has read some statistics," he said. "Each year you have heard them. Tonight I want you to see them. The dictionary defines statistics as a set of facts. Here they are, gentlemen, live statistics, live facts. If these are not enough, I can produce more. Fairmount has had more than her share of unnecessarily maimed boys and girls."

He said more, and so did the chief of police and the fire marshal, but none spoke more eloquently and convincingly than did the ten live statistics who remained silent throughout the evening.

Fairmount this year is proud of her anti-fireworks ordinance.

BRIEF HEALTHGRAMS ✣ from Articles in This Issue

¶Considering the factors of age, weight and pulse rate, the ideal swimming period for girls should not exceed thirty-five minutes. *See page 603*

¶The points of shoes became so long during the twelfth century that people could not kneel in church to say their prayers. *See page 641*

¶The "Buddy" system, devised by the Boy Scouts, is one in which each member of the party chooses one other person who will watch him and whom he will watch. *See page 593*

¶Coffee cream or a portion of cream from the top of the milk bottle, a day old thoroughly chilled, will whip. *See page 648*

¶One cannot bring a dead fish to life with ice; neither can one rejuvenate a strangled appendix. *See page 600*

¶The two eyes each see a separate image, and the development of intercommunicating nerves and brain cells causes a fusing of the two images into a single picture. *See page 632*

¶Operations for mastoiditis are advised (1) to conserve the hearing, (2) to prevent brain abscess, and (3) to prevent meningitis. *See page 627*

¶The accomplishments of the midwestern states of this country in the eradication of bovine tuberculosis are striking. *See page 617*

¶More than a dozen deaths were reported as a result of the bite of the Black Widow during the past year. *See page 621*

¶The Food and Drugs Act requires the labels of all packaged foods to bear a plain and conspicuous statement of the quantity of the contents in terms of weight, measure or numerical count. *See page 597*

¶Goethe did not write the second part of "Faust" until he was past 80; Michelangelo's "The Last Judgment" was painted after he was 60. *See page 614*

¶Worry over trivial matters, fear, shirking one's duty, mental laziness and self pity are bad habit-forming characteristics. *See page 610*

¶British citizens spend more money on hair tonics than the government spends on its colossal fleet. *See page 644*

¶Bill's "undergraduate course" is a demonstration summer playground course, held at the University of Washington. *See page 624*

¶Happy is the man or woman, the boy or girl, in whom sex is merely a well rounded part of the whole philosophy of life. *See page 585*

¶An autopsy consists of an examination, after death, of the internal organs of the body in order to determine not only the immediate cause of death but also the various diseases which affected that body. *See page 606*

¶Pork should never be eaten unless it is thoroughly cooked. *See page 635*

¶Biochemistry is the study of the composition of living matter. *See page 628*

Flimsy structures, intended for summer occupancy only, present hazards that must be carefully guarded against, for safety in the summer cottage is one of the first requisites of a successful vacation.

Sandy-Century Photos

Babes in the Woods

By CURTIS BILLINGS

PERSONAL SAFETY, like personal health, is not an end in itself but a means toward a desirable end—a full and happy life. The man, woman, boy or girl who is crippled temporarily or permanently by an accident cannot, for example, participate in the joyful pursuits of summer. The subject is particularly timely now because thousands of American families are busily preparing for their annual hegira from apartments and houses in cramped and crowded cities to the freedom of summer cottages at the seashore and on the borders of rivers and inland lakes.

Unfortunately the city dweller is far more liable to suffer an accident in the country than in the city. The reason is that outdoors he does not know what hazards to expect and what to do when he encounters them. He has developed automatic responses which protect him on busy urban streets, but he is a veritable babe in the woods. There are countless mothers and fathers who would be wise to borrow their son's Boy Scout manual and acquaint themselves even a little with the lore of woods and streams and camps before venturing with their families into the country.

There is nothing negative about self protection. One can enjoy every pleasure of a summer outing and take not one foolish chance. The good divers and swimmers are the ones who enjoy the water most. The duffer in the canoe wallows about awkwardly and dangerously in the quietest of waters while the skilful paddler shoots swift rapids with grace and in safety. How stupid it is to spoil a vacation by blundering!

What are the hazards against which one must be ever on guard at the summer cottage? I shall begin with those which usually receive the least attention because the accidents caused by them are so commonplace. They are the hazards in and near the cottage itself. Usually the cottage is a flimsy structure intended for summer occupancy only and built of wood from foundation to roof. It is as combustible as tinder in the dry season, and the mop pail is usually the only piece of fire-fighting equipment within miles. It behooves the cottager, therefore, to take every possible precaution to prevent fire, and he had best realize at the outset that more equipment is needed. Every cottage should have at least a barrel or tank full of water near at hand, and several strong buckets should be hanging near it. A small chemical extinguisher might well be standard equipment for the kitchen also. If the cottage is located in a large summer resort, it may be possible to organize a voluntary fire department with more efficient equipment including large extinguishers and a pump and hose.

Every effort should be made to prevent fires from starting. During the dry season the woods and fields are bone dry, and fire catches and spreads fast. The greatest care should be exercised in burning rubbish and leaves. A close-mesh wire burner should be used, and an adult should be on guard. Calm days only should be chosen for this job. Similar care must be

Poison ivy, or poison oak, may be recognized by its three leaves, the middle of which is stalked. Usually the leaves are serrated.

exercised indoors. Many cottages have wood-burning fireplaces. They should be screened to prevent embers from flying into the room and igniting the rugs and furniture, and the drafts should be manipulated to prevent embers from flying out of the chimney. As in the city, so at the summer resort, fire prevention and fire fighting constitute a community problem. One careless person can endanger a whole colony.

Gasoline and kerosene stoves and kerosene lamps cause many serious conflagrations especially when they are handled by persons who are accustomed to the conveniences of electricity and gas. When one inadvertently breaks an electric light, one merely replaces it; but a smashed oil lamp can cause a holocaust. The safest kind of oil lamps have broad metal bases which do not tip easily and will not break if dropped. There are available on the market several models of gasoline cook-stoves which are quite safe if they are properly used. The chief danger lies in spilling gasoline while filling the tank and in flooding the burners in priming. Instruction cards, which are generally fastened to the stoves, should be followed to the letter. Sometimes small stoves, although inherently safe, are placed on weak boxes or shelves from which they fall. A sturdy, unburnable base should be provided for every oil stove. The supply of fuel should be kept outside the cottage, and the containers should be plainly marked. Gasoline put into a kerosene lamp can cause a terrific explosion.

The wood-burning cook-stove is also not without its hazards. It should rest on a metal or asbestos base and, like the oil stove, it should have a plate of similar material covering the wall in back. Beware of long, crooked and shaky stove pipes. Shorten them if possible. They have caused countless cottage fires. Be sure that the basket of waste paper is not near the stove where some one may drop a match into it. Never pile hot ashes near the building. Never start a wood fire with gasoline or kerosene.

The housewife should not dry swimming suits or other clothing before the stove or an open fire unless she is prepared to watch them herself. Young children should never be left in the cottage alone when oil lamps or stoves are burning. Lamps should not be put on a table with a long table cover; the small child may pull the cover and overturn the lamp. If lamps are fastened in brackets on the wall, the wall should be protected by an asbestos plate. Care must be taken to trim the wick frequently. An uneven wick will not only make the chimney sooty but may also break it and thus cause a fire. The chimney of the cottage should be inspected and cleaned each season not only to see that it functions but to guard against loose bricks which might fall.

Without doubt the gravest danger from fire in the country comes from smoking. City people who are used to tossing lighted cigar and cigaret stubs into paved streets and gutters do not stop to consider that leaves and grass burn and that the total fire waste from this cause in the United States is a staggering figure. Crunch the fire out of the cigaret before throwing it down. Break a burned match before dropping

Grayish twigs, smooth red-leafed stems and white fruits are characteristic of the poison sumac.

it. Doing so will help you to remember to see that the flame is extinguished.

Housekeeping with an eye to the prevention of accidents is just as important in the cottage as in the permanent home. Many vacations are ruined by overturned pots of boiling coffee, and much suffering results. There is not so much danger from highly polished and slippery floors, to be sure, but many painful injuries result from falls. Wobbly and broken steps on porches and stairways should be repaired when the family first reaches camp. Porch floorings and railings must be strong for safety. Stairways inside the building should be free from litter. The summer cottage is no place for broken or weak furniture. It is just as dangerous to sit in a chair that has a broken leg in a cottage as it is to do so in the parlor at home. Every cottage should have a strong step-ladder.

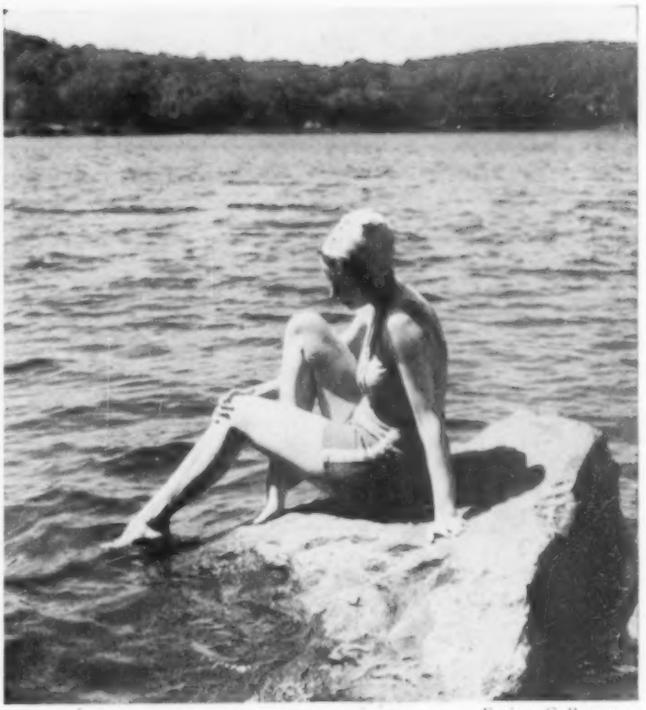
The ax should have a strong handle and the shaft should be smooth. A splinter in the hand is painful and dangerous. Beware of the loose ax head. Axes, guns and fishing tackle must be put away in a safe place so that the children cannot play with them.

The following are pertinent questions for cottagers to ask themselves, and they should suggest other hazards to be avoided:

1. Are matches kept in a safe place?
2. Is there an adequate rack or drawer for sharp knives?
3. Are used razor blades, broken glass and old wire disposed of so that they will not injure any one?
4. Are poisons kept in a place inaccessible to children?
5. Do paddles and oars constitute a tripping hazard about the house?

Camp sanitation is such an important consideration that it cannot be omitted here. Indeed many of the dangers that beset the city man in rustic surroundings enter through his mouth. Accustomed to chlorinated water and pasteurized milk, he is an easy victim for food and water-borne diseases. Water which does not bear the official guarantee of purity may be made safe by boiling or by the use of chlorine tablets. Every effort should be made to protect the purity of the cottage well. Ninety per cent of the pollution in wells enters from the surface. Waste water should drain away from the well. A solid, close-fitting concrete platform for the pump is recommended. The premises should be kept clean. Garbage cans as well as the outside toilet should be fly-proof.

The housewife who is accustomed to electric refrigeration will have her difficulty with foods in a place where ice is not to be had or deliveries are uncertain. Overripe fruits and vegetables and tainted meats are a real hazard to health. Dr. Marjorie D. Batchelor of Palmerton, Pa., speaking before the 1932 Safety Congress made some pertinent remarks on the feeding of young children. She said: "Mothers have been taught to use fresh milk, but they have not been warned regarding fresh fruit. Cantaloups and melons should be avoided because when they are fit to eat, they are already overripe. Pears, peaches and plums spot so quickly as to be dangerous. Feed children oranges, bananas and apples."



Ewing Galloway

Know the water before you dive. Tragedies have resulted from diving into too shallow water.

Drowning stands out as one of the conspicuous causes of sudden death at the summer camp. Everybody should learn how to swim, and both the learning and the swimming should be done in places where the eccentricities of the waters and the peculiarties of the bed are well known. Tides, undertow and currents are factors to be reckoned with as well as weeds, rocks, glass and other dangerous débris.

Supervised swimming areas are always the safest, and even here it is desirable for each party to have one competent swimmer for every one who cannot make his way in the water. The "Buddy" system, devised by the Boy Scouts, is one in which each member of the party chooses one other person who will watch him and who, in turn, will be watched by him; it is recommended for adults as well as for children. All too often, when the swim is over, somebody cries "Where's Tom?" And the sickening realization follows that a tragedy has occurred.

Even the strongest swimmer may have cramps. Unless a guard is nearby or the "Buddy" system is working, such an accident may prove fatal. Experience shows that the good swimmer is almost as liable to lose his life in the water as is the average swimmer, especially if he tends

H. Armstrong Roberts

Water which does not bear the official guarantee of purity may be made safe by boiling.

to overrate his endurance. He will too often attempt to swim a greater distance than his strength will stand. This has proved true in many cases when a boat capsized in the middle of a lake. The strongest swimmer struck out for shore and help and was drowned; the weaker swimmers clung to the boat, thus conserving their strength, and were saved.

Know the water before you dive. Critical injuries, and sometimes death, have resulted from diving into too shallow water. A single boulder off the end of a pier has caused skull fractures. Even the best swimmer must be careful not to enter the water too soon after eating; it is safest to allow dinner to "settle" for at least two hours.

Do not rock the boat. Members of boating parties sometimes indulge in horse-play, and what is meant for fun ends in tragedy. At least one member of every swimming party or boating party should know how to rescue a drowning person from the water, and everybody should be able to apply the prone pressure method of resuscitation.

Hiking on the good solid earth is one of the prime pleasures of a summer in the country, but there are hazards to watch out for here too. Poison ivy and poison sumac have ruined many vacations. Poison ivy, sometimes called poison oak, is a vine of varied climbing habits. Sometimes it spreads along the ground. Sometimes it climbs fences, rocks and trunks of trees. Occasionally it grows like a bush. It is recognized by its three leaves, the middle of which is stalked. Usually but not always the edges of the leaves are serrated. Poison sumac grows only in swamps. Its grayish twigs, smooth red-leafed stems and white fruits clearly distinguish it from nonpoisonous sumacs. In both of these vile plants the poison is an oil which does not produce any effect on many persons but which causes painful inflammation and blisters on the skin of others. After touching these plants, wash with a strong soap solution or with alcohol.

There are only three common poisonous snakes in America: the rattlesnake, mocassin and copperhead. None of these is in the same class as the Indian cobra, but all are sufficiently dangerous to be avoided. The proportion of fatalities among those bitten by rattlers has been estimated as between 10 and 25 per cent. Many snakes, particularly old ones, do not carry venom in their pouches, and many others do not carry a fatal dose. A bite by a nonpoisonous snake leaves a U-shaped row of teeth marks while the bite of a poisonous snake leaves two puncture wounds where the fangs strike.

Insects are less terrifying than reptiles, but they are much more prevalent. Mosquitoes can ruin an outing. So can a swarm of indignant bees. Mosquito repellants and screens offer some protection. Bees will not bother unless they are disturbed.

More misadventures are caused by domestic animals than by wild ones. Never pet a strange dog. Cast your eye about for a bull before selecting a pleasant pasture for a picnic ground. Goats are not common, but watch out for them. An infuriated goat is most disconcerting to an adult, and he may kill a child. If it is feared that the goat will attack, lie down and do not move. Remain in this position until the goat has moved a good distance away. The goat will not molest you but will start grazing.

If your hike takes you along a highway, walk on the left side so that you face oncoming traffic. Do not permit your hike to take you along a railroad right of way.

The water in the little stream may appear crystal pure, but beware, for it may drain a barnyard upstream.

If a thunder shower comes up, do not seek protection under a lone tree. Isolated trees and farm buildings form excellent targets for lightning.

A large percentage of serious accidents at every camp is caused by careless automobile driving. Because country roads are less frequented, drivers become rash.

A good deal of summer misery is occasioned by sunburn. A coat of tan is a prized trophy, but it should be acquired slowly.

Thousands of accidents, minor in themselves, become serious because first aid equipment is not at hand. If your vacation in the country is to be successful, follow the rules that common prudence dictates.

Are Foods Truthfully Labeled?

By SOLON R. BARBER

WHAT IS TRUTH? The conceptions of truth are many, and they change from time to time just as styles in dress, in art and in medicine change. Surely one could not now say that there is anything but an academic interest in the belief, held in an earlier day by superstitious Russians, that when a plague struck a village the thing to do in order to protect the population was to hitch four widows to a plow and run a furrow around the town!

As late as the sixteenth century, physicians commonly believed that gunshot wounds were poisonous. A favorite method of treating a gunshot wound was to apply boiling oil, in the belief that the oil would counteract the effect of what was believed to be poison. It was commonly believed in those days that the hemorrhage following amputation of a limb could be prevented only by cautery; that is, by applying a hot iron to the wound. But in spite of the popular faith in such untruths, there was one man who rose up and discovered that these ideas were false. His name was Ambroise Paré, and he is accounted one of the greatest surgeons of the sixteenth century.

As there are changes in men's ideas as to what constitutes truth, there are also degrees in what constitutes a truthful statement on the label of a package of food.

In the executive offices of the Federal Food and Drug Administration in Washington there recently appeared a manufacturer against whom proceedings under the Food and Drugs Act had been started. His product was a purple powder sold in small cartons. The label assured the housewife that by the easy and inexpensive process of adding the contents to 2 cups of sugar and 1 pint of water and of boiling it for a few minutes and cooling, she would have four glasses of the finest grape jelly. The label went on to say that this grape jelly would be just like the jelly she would get by the hot, laborious, time-consuming process of preparing it from grapes off her own vines. The label emphasized the availability of this product for making fresh grape jelly at any time of the year, in season and out. Analysis by government chemists had shown that the product consisted of artificial flavor resembling grape, artificial color, acid and pectin. No grape juice was present. While these constituents were harmless, none of them had ever been associated with grapes, and the so-called grape jelly the housewife made in this way was merely an imitation of grape jelly. The manufacturer admitted that his labeling was exaggerated. "But," he said, "I was merely taking salesman's license. I'd have been a boob not to put my product forward in the best possible light."

An inexperienced label reader, glancing hurriedly at this olive oil label, might be justified in thinking that the article was pure olive oil from Italy. A careful second reading, however, would show that it is olive oil mixed with cottonseed oil. It will be noted that the statement of the net contents, "one full quart," is printed quite conspicuously at the top of the panel. The keen buyer studies labels carefully.

C. W. Crawford of the Federal Food and Drug Administration demonstrates the discrepancy between the size of this package of grated coconut and the actual contents inside. Uncle Sam's food and drug officials are now urging passage of the so-called Slack Fill Bill, which would make illegal the slack filling of packages of food. The housewife's guide in cases such as the one illustrated, as in all other cases of food purchased, is to read the quantity-of-contents statement required by the national pure food law on all packaged foods shipped interstate.

I have told this story to illustrate the fact that the question, "Are all foods truthfully labeled?" cannot be answered "Yes," for as long as men with such standards of ethics are attracted to the food manufacturing field, misbranded foods will appear on the market. By misbranded foods I mean foods bearing false or misleading labels. The Food and Drugs Act does not have any jurisdiction over the advertising that one sees in newspapers and periodicals and on billboards, or hears on the radio. The act does apply to labels. Untruthfully labeled foods do not often stay on the market for long; they frequently do not gain wide distribution either. The reason for this happy condition is twofold. First, the great majority of food manufacturers do not make any attempt to misrepresent their products. They recognize that, even if there were no law to prevent misbranding, an enduring business enterprise cannot be built on dishonest merchandise. Second, the small proportion of dishonest individuals who have invaded the food manufacturing field find that the enforcement of the Food and Drugs Act makes cheating through the medium of false label statements unprofitable. The net result is that today the sale of American foods is on a higher, more ethical plane than that of any other great commodity group, here or abroad. So the question, "Are all foods truthfully labeled?" cannot be answered, "No."

Perhaps some idea of how truthfully American food products are labeled may be conveyed by stating that during the fiscal year 1932, only 1,647 cases were brought against foods, under the federal Food and Drugs Act, for both adulteration and misbranding. The total value of manufactured foods for the same year, excluding raw commodities such as grains, fresh fruits and vegetables was about $15,000,000,000. With the close supervision that is maintained over this food supply, it is obvious that misbranding is not general, or many more than 991 prosecutions would have been brought.

There is altogether too widespread an impression that the Food and Drugs Act deals merely with the purity and wholesomeness of foods and prevents only such abuses as the sale of rotten food or food containing added poisonous substances in amounts which may be harmful to health. While the law emphatically forbids traffic in filthy or decomposed foods and in foods containing added poisonous ingredients which may render them harmful to health, it also, with equal emphasis, bans the sale of foods under labels which are false, misleading or deceptive in any particular whatever. The United States Supreme Court has said, "The law enjoins truth." Consequently there is little room for so-called salesman's license or for the play of the imagination beyond the realm of facts in the labeling of foods. In buying a package of food today, one is quite likely to get just what the label says it is.

Informative Labels Protect the Purchaser

But while the law does not permit false or deceptive labeling, it does not require a detailed descriptive label except where such a label is necessary to prevent deception. Let me cite canned peas as an example. As long as peas are clean and wholesome and are canned while green, before they have dried in the pods, they

may be labeled simply with the word peas. But every one knows the vast difference in quality between the tiny, tender, succulent peas and the large starchy peas canned just before they begin to dry on the vine. Both products are canned peas, and while no false representation as to quality or grade can be made, both could formerly be labeled with the name peas without qualification. An important step in the direction of more informative labeling of such canned foods as peas was taken on July 8, 1930, when the President signed the so-called Canners' Bill which authorizes the Secretary of Agriculture to formulate and announce, from time to time, standards for all canned foods except milk, meat and meat products. This amendment to the pure food law gives the Secretary of Agriculture further authority to draw up a certain label designation for such foods as fall below the standards formulated. This designation, in the case of vegetables, is "Below U. S. Standard; Low Quality But Not Illegal," and, for fruits, "Below U. S. Standard—Good Food, Not High Grade."

Strict Standards Are Established

Now, continuing with canned peas as an example, the designation, "Below U. S. Standard; Low Quality, But Not Illegal," on a can does not mean that the food is unwholesome or inedible, at all; it means merely that it is below the standards drawn up. The small, tender, succulent peas would not bear such a label declaration, but the large, mature, starchy ones would. I consider the passage of this amendment, pushed through Congress by the canning industry, a distinctly important addition to the Food and Drugs Act and one which will give the buyer still further protection in making purchases.

Under the new regulations the authority granted the Department of Agriculture by the McNary-Mapes amendment, which establishes a standard of fill of container for canned foods, is still further invoked to guarantee the housewife a full can of food. In case the contents fall below the standard of fill, the goods are required under the law to be labeled with the statement, "Below U. S. Standard, Slack Filled." This regulation enables the purchaser to know when she is getting a can of food incompletely filled.

The protection afforded by the Food and Drugs Act against unwholesome and deceptively labeled foods costs each man, woman and child in the United States slightly more than 1 cent a year, but the full value of this investment is not obtained unless those responsible for the expenditure of the food item in the family budget read the labels carefully and intelligently. A housewife recently expressed indignation at the quality of a can of lima beans she bought from a local grocer. Yet examination of the empty can showed that the label plainly said "Soaked Dry Lima Beans." If the lady had observed the label when she made her purchase, she would have known that these beans were not canned in the fresh, succulent state but were dried beans, requiring soaking before canning.

A Word to the Wise Is Sufficient

The law requires the labels of all packaged foods to bear a plain and conspicuous statement of the quantity of the contents in terms of weight, measure or numerical count. From two cartons of cake flour, for example, of the same quality and price, housewives have been known to select the one containing the smaller amount of flour. If they had observed the net weight declarations, they could easily have chosen the carton containing the larger amount of flour and thus they would have received more for their money.

For their own protection, buyers should carefully read the labels. The law can only insure truthful labels; it is up to buyers to take full advantage of the information the labels convey and to profit by careful observation.

Here are two bottles of vanilla extract. If they were both before you on the counter, which would you choose for a given price? The bottle on the left contains exactly twice as much vanilla extract as the larger bottle on the right. No buyer who reads quantity-of-contents statements printed on the labels of packaged foods will be deceived by false bottoms, false sides or other deceptive characteristics of some food containers.

The Why of Appendicitis

By

HUGH ROBERTSON

"Ouch," says Bobbie, clutching his abdomen.

A MOTHER once said to me, "I'd rather have my child dead than operated on." And she meant it, for the operation did not take place. Also her wish was granted in that the child died. Her neighbors whispered somewhat among themselves; but with the consoling thoughts that "the Lord giveth and the Lord taketh away" and that "he would have died anyway," she bore up bravely. And yet she is not to be blamed unduly; she simply did not understand.

She had heard that appendicitis could be "frozen out." She had heard that operations were dreadful things and dangerous. The kind lady next door who had moved in from Scranton had heard of a boy who died because of a needless operation. In her terror the mother had thrown herself in the way of the one and only hope of recovery that her son had. She did it because of an unreasoning mother love.

The common things in life are the things that are often least understood. After they are explained, one remarks, "How simple! Why any one would know that." So it is with the strange and terrible thing called appendicitis. There is nothing mysterious or "scientific" about the vermiform appendix. It is to clear up much worthless misinformation and to make mothers see how simple it all really is, that I have written this article about "The Why of Appendicitis."

Appendicitis is not a new thing by any means, but a ten day recovery from it is. In grandmother's time, children died from "inflammation of the bowel." In early ages, the medicine man would half drown the dying child in sulphur water. This was crude; hence the barber of medieval Europe purged the sick little girl with calomel. Usually this made her worse, so he had to resort to more severe methods. Quicksilver in ounce doses was given until a pint had been used. If this did not relieve the "stoppage of the bowel"—and I daresay it never did—the patient was hung by her heels until the valuable quicksilver was recovered for use in the next patient. The wide-awake medical man of the eighteenth century knew too much to use such old-fashioned and roughshod treatments. He carried his blood-letting paraphernalia in a large suitcase and remained with the patient as long as he thought he could be of some use; that is, as long as the blood lasted.

Next came the glacial age, which was really a remarkable improvement, for the patients subjected to its régime often lived. Patients were packed in ice. But about this time, timid souls, encouraged by the work of Lister and aided by the new use of ether, which previously had been a good dry-cleaning agent for the removal of grease spots, began peeping inside the abdominal wall. What they saw surprised them, for each time they operated in an early case of "inflammation of the bowel," they found that the vermiform appendix, which they had known since the time of Vesalius, was much engorged and beginning to slough. On the removal of this gangrenous organ, recovery took place speedily. They had solved the riddle of "inflammation of the bowel."

The vermiform appendix is ordinarily quite a peaceable little chap. He is pale, slim and bashful. His feelings are deep and profound. He is about 2 inches long and about ¼ inch in diameter. Surely this cannot be the devastating rascal, the devouring monster, the ruthless idiot of the abdomen! He lies lazily attached to the first portion of the large intestine, the colon, near the valve where the small intestine is connected. He is hollow; his cavity opens into that of the colon. The mucous membrane of the two is continuous. The appendix is simply a blind, narrow little pocket in the colon. Removal of the appendix results only in the loss of several square inches of mucous membrane, which is

negligible since the mucous membrane of the colon covers an area of thousands of square inches.

The coat of the appendix is a shiny silken one of a delicate pink, but it is as tough and inelastic as airplane cloth. When his feelings are hurt, the appendix strangles himself with this pretty silken coat. I shall explain the suicide thoroughly, for it is this inexcusable act of the appendix that gets the surgeon out of bed at 4 a. m. for an emergency operation.

The appendix has his own private blood supply, a luxury which has ruined him completely. Blood carries oxygen to the tissues. If the oxygen is cut off, the tissues turn blue and die. Watch a choking youngster. See how blue his face gets in just a minute; unless you act quickly, all will be lost in a few minutes. You would not pack the child in ice, would you?

The blood supply to the appendix comes to him through a transparent veil in which the vessel spreads out fan-shaped and sends its twigs to his entire length. These twigs enter the appendix and pass beneath the tough silken coat to nourish with rich warm blood the mucous membrane with which it is lined. All mucous membranes secrete a mucilaginous fluid which lubricates the inside of an organ. Although the appendix is small, it nevertheless secretes a certain amount of this fluid. As long as the passageway is open, this fluid drains into the colon. But what if the appendix becomes kinked or obstructed by something within its cavity? The answer is obvious: mucus is dammed back. Still the fool appendix secretes. There is not room for it all, and the pretty silken coat will stretch not a particle. Things become more and more crowded.

"Ouch," says the mucous membrane.

"Ouch," says the nerve that runs from the appendix.

"Ouch," says little Bobbie, putting his hand to his abdomen.

The pressure is too much for the mucous membrane, and it begins to slough. Worse yet, for this forms pus because the white blood cells swarm to meet the bacteria which creep into the crevices of the decaying mucous membrane; and the supply of these dangerous bacteria is never lacking, for there are millions of them inside the cavity of the colon at all times. The pus increases in volume. More "ouches" come from all concerned—loud ones now. What is happening? The blood vessels that are doing their best to keep the tissues alive are being squeezed shut against the unyielding membranous wall. The appendix is strangling itself!

In about twenty-four hours, all is over for the appendix. It has had its final agonies and has begun to disintegrate. The nerves that sent the severe pain to Bobbie's abdominal wall are dead now, too.

"I'm better," says Bobbie from beneath the ice bags. "Please don't let them send me to the hospital."

Oh, base and deceitful appendix, you are the villain even in death!

The final scene comes quickly. The dead and gangrenous appendix filled with virulent pus either sags open or sloughs off *en masse* and pours its poison into the abdominal cavity. Nature attempts to wall off this poison and does, too, even now if it is let alone. The abdomen is splinted to prevent the coils of intestine from moving and spreading the infection. The time for surgery is past, at least temporarily. Any attempt to remove the appendix at this stage will only do harm by breaking down the protecting walls that Nature has thrown up to stop the invading enemy.

Bobbie is indeed a sick boy. His abdomen is as hard as a board. The pain is fearful. He balloons up with gas. He vomits everything he attempts to drink. His chances of getting well now are much diminished, but by careful nursing and constant medical attention he can still recover. After a week or so an abscess forms about the dead appendix. The temperature, which has been flirting about the 105 mark on the thermometer, drops again. Now surgery gets its second chance. The surgeon goes in cautiously, clears up the mess as best he can and puts in drainage tubes to allow any new pus to drain out, and Bobbie slowly, ever so slowly, recovers.

Oh, that he could have been spared all these weeks of torture by having the acutely inflamed

In medieval times the patient was sometimes hung by her heels to recover the quicksilver.

appendix removed within the first twenty-four hours. He then would have been feeling fine in three short days; he would have been back home and hungry in two weeks, and out playing again in three weeks. This is the thing mothers cannot seem to understand. Go to any hospital and compare the happy convalescence in the "early" appendix case with the bloated, horrible, live-or-die time in the neglected "late" case. Compare the hospital bills of the two cases, if the comparison of the suffering involved does not convince you.

But happily only a few of the abdominal pains in children are due to appendicitis. Growing children are especially prone to try out their digestive apparatuses on indigestible apples and candies. But be careful! The pain of appendicitis can begin almost anywhere in the abdomen; but it usually settles in a short time over the appendix, which may or may not be placed "according to Hoyle" in the lower right side. Do not be fooled. Persons who are suffering from appendicitis often vomit; some never do until peritonitis sets in.

I cannot conclude this article without a few words about laxatives or physics. These are the bane of every surgeon's existence. Their indiscriminate use by well meaning mothers for abdominal pain can do untold damage. A good physic can be just strong enough to rupture a gangrenous appendix that might have walled itself off had the child been let alone or given a soap enema. If your child has severe abdominal cramps, do not give him a physic. If the pain is due to something he has eaten, a large warm soap enema will relieve it. If the pain still persists, call the doctor and let him decide what to do. And if, perchance, he says "appendicitis," remember these figures and be happy:

Acute Appendicitis in Children

Operation within twelve hours of onset, 99.5 per cent recover.

Operation within twenty-four hours of onset, 89 per cent recover.

Operation within forty-eight hours of onset, 50 per cent recover.

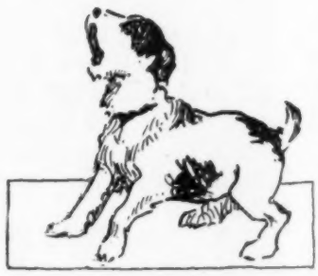
After forty-eight hours, no operation until temperature is normal.

One cannot bring a dead fish to life with ice; neither can one rejuvenate a strangled appendix.

Dog-Days Hold No Horrors for Hygeia Readers

The August Issue Will Tell

How to Be Happy and Healthy Though Hot



The fraternity of dog fanciers may well take its slogan from the days of St. Bernard at which time was originated the proverb, "Who loves me will love my dog also." But when dog life menaces human life, there can be no hesitancy in safeguarding the life of the human being even at the sacrifice of the canine. "It is hard to understand how any one who knows about rabies and the dreadful death it causes can object to the only certain way of eradicating it; that is, the enforcement of stringent dog laws," writes *Dr. Richard E. Stifel* in his article, entitled, "Dog Laws." "The Swiss," he continues, "have abolished hydrophobia. . . . They love their dogs, but they love their children more."

Dr. Leo L. Mayer brings the encouraging message that "in this day and age there is no reason for any one to have crossed eyes."

Making a picnic a real picnic for every one concerned is the task that *Mary C. Brown* sets herself in "Eating Under the Sky," an article in which she describes simple, well balanced, artistic, healthful outdoor meals which will not leave bad mental or physical effects.

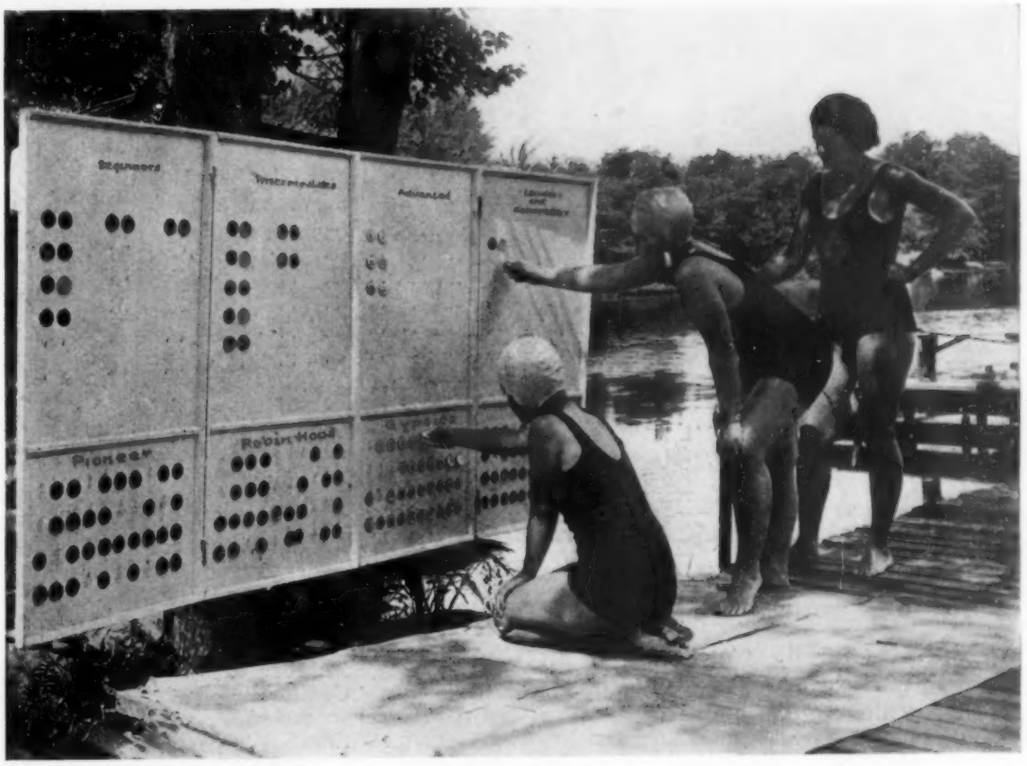
"With the isolation of insulin," writes *Robert D. Reynolds*, "medical science had performed another miracle, and to the diabetic patient it ranked with the greatest marvel of all times. It meant a new hope and life for him. . . . Today, the expectation of life should be as great as that of the normal individual, if not greater." In a reassuring article, a diabetic patient looks at life "In the Shadow of the Needle"—and finds it not bad.

"Forty Looking Forward"—should it be a time of panic-stricken regret for the unfulfilled desires and ambitions of youth or a time of pleasant anticipation of enjoyment of a well planned future? *Dr. John R. Hamilton* tells of the years ahead, the years in which a man may enjoy the prestige his mature judgment brings him and help guide those with less experience.

In a timely article, "Safeguarding the Take-Off for School," *Dr. Gaylord W. Graves* discusses the necessity of physical examinations for the preschool child: "There is probably no more neglected age period in childhood than the preschool period. Infancy," he explains, "is safeguarded because of its unique helplessness, and the older child when ill speaks most effectively for himself."

Safe Swims for Campers

By
Phyllis Jackson



By means of the "Buddy" system the leader may tell by a glance at the board who is in the water and who is on shore.

WHEN THE WAVE of camping enthusiasm first swept the country, it was taken for granted by many that a few weeks of close contact with the outdoors would be a panacea for all ills. Camps sprang up like mushrooms. "Send the children into the country" was engraved on the minds of parents. The children went to the country and carried out a program as full as a debutante's calendar. It did not occur to many persons that while vigorous outdoor life in certain proportions is beneficial, tightly scheduled days that begin with "jerks" and early morning dips, and go on to long swimming periods, cross-country walks, competitive games, hobbies, and dramatics may reduce the weight and frazzle the nerves of the healthiest child, even though the child eats the freshest of country food and spends the entire day inhaling country air.

The Camps Adopt a Slower Tempo

The next stage in the development of camping was the recognition of this mistake. Scientists, physicians and educators gave serious thought to the matter and lent a hand. It was realized that country days crammed with activities might almost as well be spent in hot city streets for all the benefit derived by the children. Camps all over the country changed their tempo. They stepped, one might say, from a highly exciting polka into the easy pleasant rhythm of a waltz.

Steady Progress Marks the Program

A leisurely tone in camp, vigorous exercise in moderation, and vigilance toward health and safety always have been part of the Girl Scout camping creed. At least one third of this organization's program is devoted to camping, and its camps, numbering 575, are located from coast to coast. While camping on so large a scale and in such widely different localities is bound to resist standardization of any kind, there has been steady and uniform progress toward balanced, healthful programs. In addition to insisting on camps meeting the minimum standards of the organization for health and safety and the Red Cross standards for water-front protection, the Girl Scout organization has always kept an open mind and has been quick to incorporate into its camping program the opinions of eminent doctors, health authorities and educators. Reforms in water-front programs have been noticeable. Several years ago, when a decision was reached on the inadvisability of the early morning dip and exercise, the

Paul Parker Photo

Time spent in swimming may influence weight.

word immediately went out to all Girl Scout camps, and routines were altered. Long distance underwater swimming has been discouraged because of the irritating effect on the sinus. Because of the hazards, night swimming has been prohibited in Girl Scout camps.

Swimming Influences Vitality and Weight

In the opinion of Dr. W. R. Redden of the New York chapter of the American Red Cross, the length of time a camper spends in swimming each day has a decided effect on her vitality and weight. Professional observations of this sort gave rise to a swimming study, suggested by the Girl Scout national water-front, safety and health adviser, and carried out last summer in sixty-eight Girl Scout camps located throughout the United States. The object of the study was to find a time that would be advantageous to the physical welfare of campers and that could be advocated to the average camp operating under normal conditions with normal children. A letter which outlined the purpose of the study was sent to the director of each Girl Scout camp with a water-front, and suggestions were made that the camp director should discuss the proposed study with the water-front director and camp nurse.

The extensiveness of the study was left to the individual camps with suggestions that the study might concentrate on one group or on the entire camp and be carried through a minimum time of four weeks or through the entire season. Directors and water-front directors were cautioned to make the study a summary of the effect on the group for the entire period and not on individuals who might have been influenced by a particular stimulus. In order not to influence actions and reactions, no campers were to be told that the study was being made. Instructions were given not to change the calorie content of the food in camp and to keep a normal camp routine.

Sixty-Eight Camps Cooperate

Moreover, special groups taking life saving and expending extra time and energy in the water were considered separately. It was advised that the same study should be made over a second two week period in order to check the results. Special observations not called for in the questionnaire were welcomed.

The following questionnaire accompanied the letter:

QUESTIONNAIRE TO DETERMINE THE PROPER LENGTH OF TIME TO BE SPENT IN THE WATER BY SWIMMERS IN CAMPS

Camp ..... Region .....
Camp Director..... Water-front Director.....
Nurse ..... Dates of Experiment.....
Average temperature of water for two weeks.....
Average temperature of day for two weeks.....
Time of daily swim.....
Length of time spent in water first week.....
second week.....
Number of swimmers being observed.....
Composite weight of swimmers at beginning of session.....
Composite weight of swimmers at end of first week..... the length of time in the water remains the same for the entire week.
Composite weight of swimmers at end of second week..... the length of time in the water shortened, lengthened by ..... minutes a day.
Reactions ..... First Week.....
Reactions ..... Second Week.....
Was there a period of temporary exhaustion following swimming period (swimmer wanting nap, or drowsy), or was there a reaction of exhilaration following the swimming period.....
Was there a marked change the second week following the change in length of time in the water.....did the change become more evident toward the end of the week.....
Are you satisfied that you have found that illusive time period which makes swimming a helpful and advantageous part of your camp program?.....
Remarks: .....
.....

Sixty-eight Girl Scout camps carried out the study enthusiastically. A few of the reports showed only the recording of temperatures and observations of the reactions of the swimmers made by the camp nurse and water-front director with various lengths of swimming periods. Others conducted an extensive study including pulse rates before and after the swim, temperature of the swimmers and detailed observations, repeating the study with different groups throughout the summer season.

The value expected to be derived from this study is that it may influence and help water-

front counselors in determining the length of time to be spent in the water. It may help them to make a study of their own proper time to suit a majority of swimmers.

Swimming is generally conceded to be one of the most healthful of all sports, the deduction being that the more one swims, the healthier one will become. Observations have shown, however, that too long swimming periods are enervating in effect. From a comparative study of groups of children swimming and living under the same conditions for a period of time but spending different lengths of time in the water, certain conditions have been revealed.

"How Long May I Stay In?"

With adjustments to individuals the following summary should act as a helpful guide in arranging the swimming schedules:

The range of temperature of the water in the camps that conducted this study was from 69 to 80 F. The range of temperature of the day was from 72 to 95 F. It was generally noted that while the temperature of the day varied greatly, that of the water did not.

The shortest length of time spent in the water was twenty minutes a day; the greatest length of time was one hour and fifteen minutes. The twenty minute period, lengthened to forty minutes a day and divided into two periods, was not found enervating in several cases.

It was agreed by twenty camps that any period of time greater than forty-five minutes was too strenuous.

Thirty-one camps agreed that a thirty minute period was the ideal time, while twelve added a fifteen minute dip in the afternoon to the thirty minute instruction time and did not find any noticeable effect. One camp decreased from forty-five to thirty minutes and found a decided increase in energy of the campers.

There was an appreciable gain in weight in camps in which the swimming period was thirty minutes and a slight gain in camps in which the swimming period was more than forty-five minutes. This may be the influence of regular life and diet in various camps. The trend, however, was consistent.

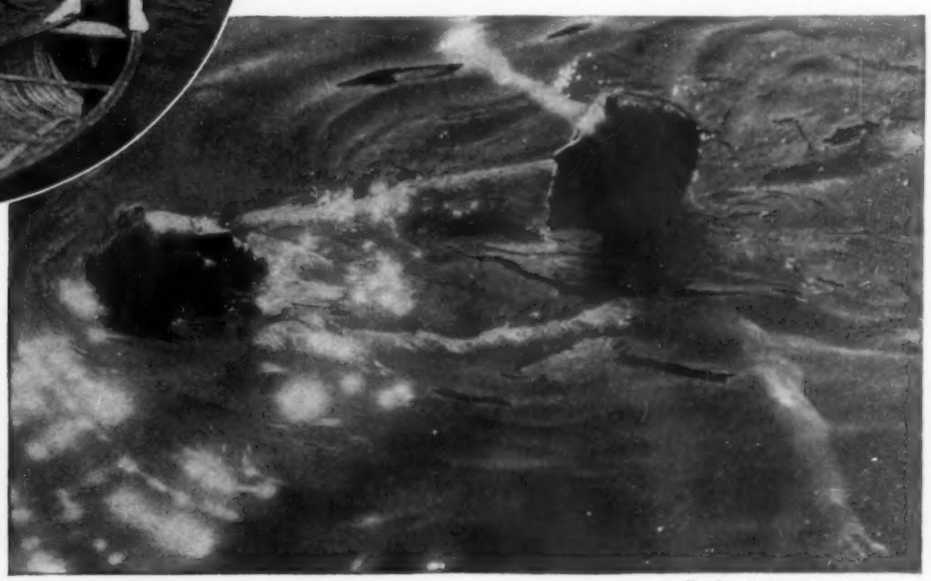
The pulse rate was found to come up 10 beats a minute between the twenty minute and the thirty minute swim, yet it dropped 7 beats when the swimming period was extended to forty minutes. This seemed to be due to the fact that the swimmers had, according to their own reports, "had enough" in thirty minutes or were "ready to rest" or to "quit."

All Classes of Swimmers Are Represented

The groups remaining in the water were representatives of all classes of swimmers. Non-swimmers remained as long as good swimmers.

Several camps observed that after forty minutes the swimmers gave outward signs in the form of poor color and chilliness.

The study indicates these results: Considering the factors of age, weight and pulse rate, the ideal length of a swimming period should be no more than thirty-five minutes. A thirty minute period is the time adopted by a majority of the camps. Forty-five minutes divided into two periods does not have any ill effects.



In the picture above, a gunwhaling race is about to start. To the right, a tired swimmer is being carried to shore.

Ruth Alexander Nichols

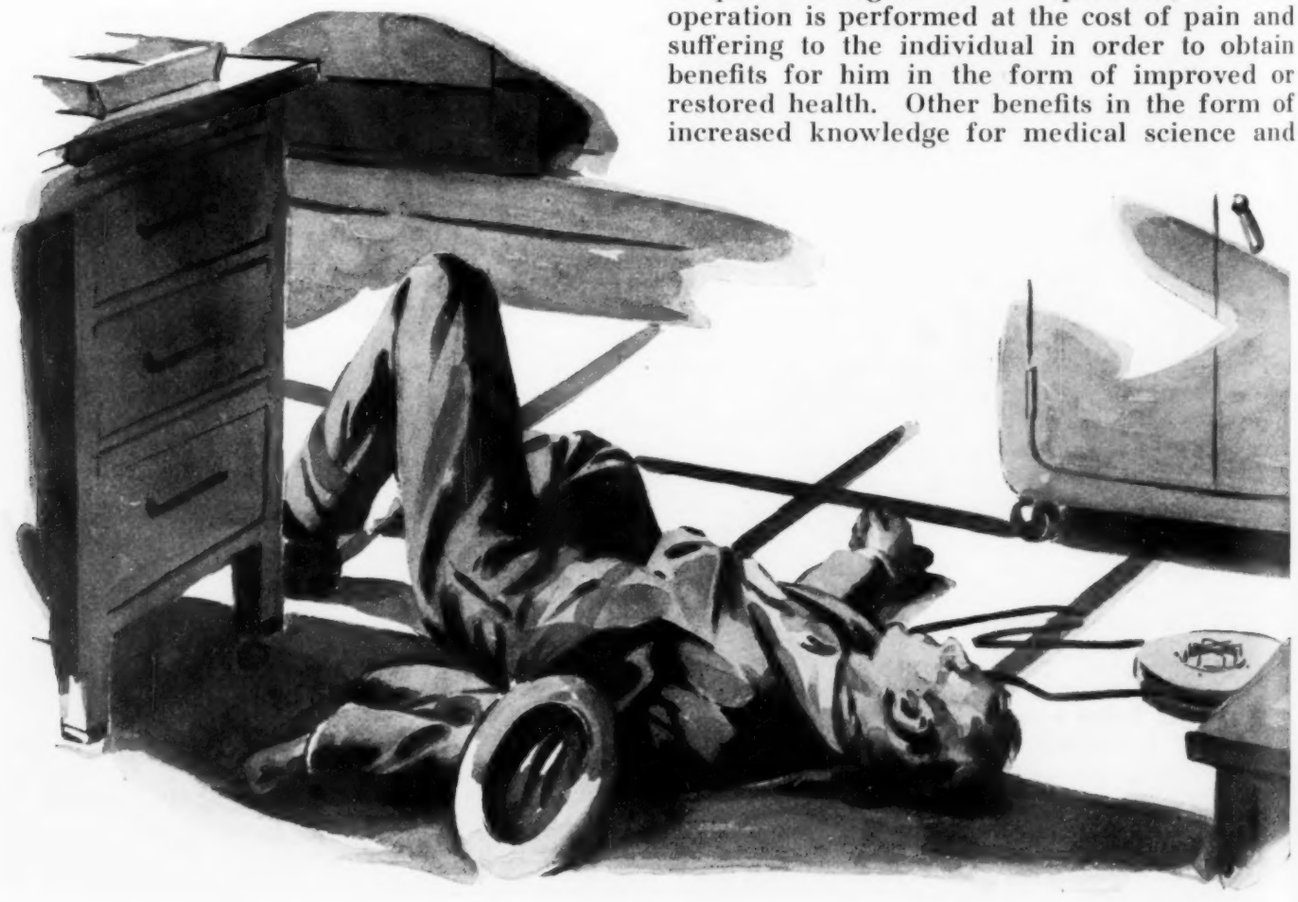
Why Should Postmortem Examinations Be Done?

By MARGARET WARWICK

THE NORMAL, healthy person naturally avoids all thoughts of death and the unpleasant circumstances which may accompany it. But men have learned that during health and happiness they must make some provision for that greatest of all adventures which must one day come to all of them. So they provide for their dependants, decide where their unneeded dollars will go, and choose their final resting place; but few men ever give a thought to the question of whether or not to have a postmortem examination performed on their bodies, and few ever inquire into the reasons for such an examination. Yet this subject deserves some consideration during the lucid years when other arrangements are being so carefully made for the leaving of this world.

This examination is designated by several different names, but the old, self explanatory term postmortem will always remain in general use. From its derivation, necropsy should be the proper term, but it seems awkward and difficult to pronounce and has never come into general use. The less correct word autopsy is the one most commonly heard, and through constant usage it has become the accepted, if not the best, term.

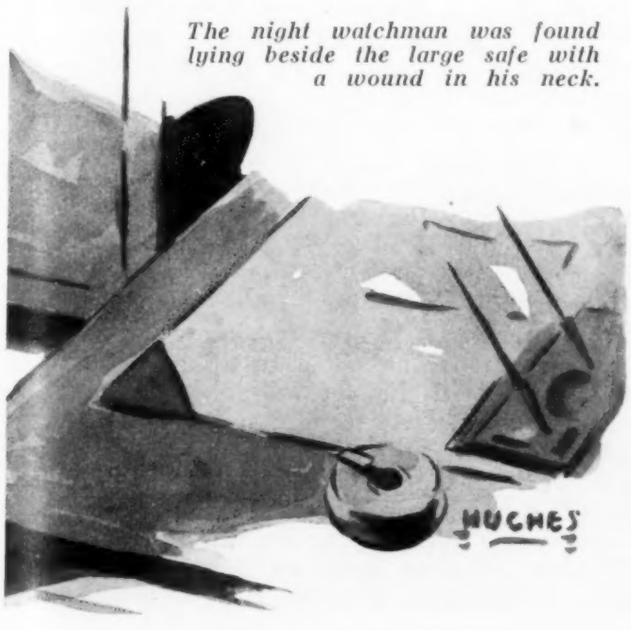
An autopsy consists of an examination, after death, of the internal organs of the body in order to determine not only the immediate cause of death but also the various diseases both past and present which affected that body. In other words its purpose is to determine not only what diseases killed the person but also with what diseases he lived during his life. An autopsy is quite analogous to an operation, but the operation is performed at the cost of pain and suffering to the individual in order to obtain benefits for him in the form of improved or restored health. Other benefits in the form of increased knowledge for medical science and



for the betterment of other individuals are not always so evident. In contrast to the operation, the autopsy causes no pain or discomfort to the individual who is the patient; yet at the same time it brings to the bereaved family the satisfaction of accurate knowledge of the disease conditions present. It teaches and trains countless physicians, and it contributes much to the development of medical science. When it is viewed in this, its true light, it ceases to be a formidable thing and becomes a simple procedure with advantages far outweighing the disadvantages against it.

Permission for this examination must always be obtained from the nearest of kin—husband or wife, parents or children, or the majority of surviving brothers and sisters. Laws concerning autopsies, like all other laws, differ somewhat in various parts of the country, but they are all essentially the same in insisting that the permission, preferably written and witnessed, must be obtained from the members of the immediate family, who must understand what is meant by such an examination. Occasionally some person, such as a physician or some other scientifically minded individual, expresses a wish or leaves a request to have an autopsy performed; but the members of the family usually have full authority in the matter, and it is their privilege to respect that wish or to disregard it.

Any case of accidental death or of unexplained death from accident, injury or violence becomes a coroner's case. The coroner, either independently or with the assent of some other county official, can order an autopsy without the consent of the family, if he feels that the autopsy will throw light on the cause or manner of death. The attitude of such officials will depend largely on the individual and on his political security or aspirations. Many a coroner signs a certificate "death from heart failure" in order to avoid the effort of performing an autopsy or arranging to have it done or to avoid the possibility of offending potential voters. In some localities, however, proper examinations are performed in every instance of unexplained death as well as in many others in which the cause of death appears to be perfectly obvious, but in which it is not. Such routine examinations bring to light many facts valuable alike for scientific and for social enlightenment.



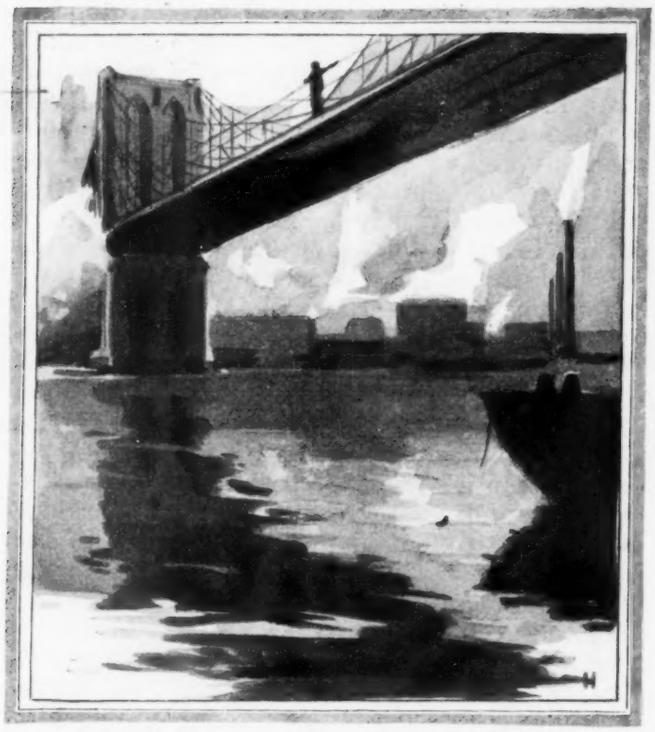
The night watchman was found lying beside the large safe with a wound in his neck.

For example, the middle-aged man who jumped from the high bridge was found to have an advanced cancer of the stomach. The examination was not necessary to prove that his death was due to drowning, for that was self evident, but the discovery of the cancer leads to important speculation from the sociologic or humanitarian point of view. Was his pain unbearable? Did he dread the long terminal stages of the disease since he had no family to smooth the way for him? Did he lack the funds necessary to support him when he would be forced to give up to his progressive physical incapacity? Did he know that he had a cancer, or did he just know that he was exceedingly miserable?

The girl who swallowed carbolic acid died by her own hand, there is no doubt of that; but the examination showed that she was pregnant. The man in the gas-filled room had internal hemorrhages and injuries that suggested foul play. The man, well past middle age, who was found imprisoned inside his wrecked car in the river, had no water in his lungs; but there was a tiny blood clot in one of the small coronary arteries of his heart. Therefore it appears as if the heart attack caused his car to go into the river. The night watchman lying beside a large safe with a wound in his neck showed a thickened, ruptured blood vessel, with a resulting hemorrhage in his brain; evidently, then, he fell across the safe and cut his neck. The obvious facts are not always the real facts; and even if they are true, they do not tell the whole story. But the autopsy does tell the whole story for him who will but read it.

Objections to autopsies are usually purely sentimental and are often based on ignorance of the true character of the examination or of its motives. Occasionally they are based on superstition, and sometimes, usually without any real foundation, they are ascribed to religious scruples. These objections are usually raised during the first sting of grief over the loss of a loved one, when it seems impossible to realize that the dear one no longer lives in the familiar body; when it seems unbelievable that that familiar, beloved body no longer feels any pain, or when the sense of loss so blots out the reason of the bereaved that they cannot believe that the knowledge of the disease conditions present could ever benefit or comfort.

Occasionally the objections to an autopsy are dispelled by the hope of monetary gain or by the



Why did he jump? Did he know that he was incurably ill or merely that he was exceedingly miserable?

demands of an insurance company. Occasionally the family will even permit exhumation for an autopsy. Yes, they can remember that Jack was thrown from his horse less than six weeks before acute appendictis developed; perhaps there was some connection between the two occurrences. He carried a large accident insurance, but the company refuses to consider the case at all unless an autopsy is done. So perhaps one should be performed after all; it is not such a formidable thing, when one comes to think it over again.

The subject of having an autopsy performed should be considered, discussed and decided during the years of health and security and happiness in an intact family circle, and a clear unprejudiced opinion should be reached. Then when tragedy comes and the dark hour of adversity and loss appears, the grief-stricken mind is not called on to function and decide a momentous question which seems to be, at that time, particularly unwelcome and distasteful. If the decision has already been reached some time before, the family will promptly say, "Yes, we do want an autopsy performed. We have often talked it over, and Jack himself wanted it," or else, "No, we cannot consider an autopsy at all, for we have often talked it over and have decided against it. Jack always found the thought particularly distasteful"; and thus the matter is ended for better or for worse.

Strange as it may seem on first thought, the family of the deceased receives the greatest degree of benefit and satisfaction from a postmortem examination, and they will realize it and appreciate it as soon as the first shock of grief is over. They will derive a certain amount of comfort in knowing which disease processes were present, which were the immediate cause of death, and how these were related to preexisting disease conditions. During the past few years the public has been instructed in medical matters through the press, the cinema and the lecture platform, and as a result of this instruction, medical science is no longer a closed book, it is no longer shrouded in mystery. After the first sharp sting of grief is over, the family will begin to wonder about many things. They will remember that the attending physician had seemed to be in doubt about some of the symptoms and had said that there were many unusual factors in this case. When numerous friends ask "Just what was the matter with Jack?" it will be a satisfaction to know, even if not to answer. Often these examinations reveal unexpected diseases or incurable conditions which seem to make the loss more bearable in the knowledge that, whatever was done or left undone, the result would have been the same and that death at this time may have saved long years of suffering and incapacity. Many a mother is comforted by the knowledge that her baby had a congenital defect which would have prevented him from living much longer or that his sudden death was caused by a definite pathologic condition and not by any unconscious neglect on her part.

Also, it is of great importance to know just what diseases are present in a family to threaten other members, so that preventive measures may be taken. If a parent or an older child is found to have an unsuspected tuberculosis, expectant care may be given to other members of the family, particularly to the children, in order to prevent other fatal cases. If one member has syphilis, the blood of the other members may be tested and, if the reaction is positive, treatment may be instituted, resulting possibly in the prevention of much suffering and incapacity. In spite of the accurate diagnoses possible for the clinician of today, many cases of syphilis, tuberculosis and cancer, as well as numerous other maladies, are first recognized at the autopsy. Evidence is constantly accumulating to show that heredity is a factor in cancer although it is generally understood that under the conditions of modern human marriage it is not a significant one. Unfortunately, the average person does not know what caused his parents' deaths, not to mention what caused the deaths of his grandparents and great-grandparents. A large number of cancers affect the internal organs only and diagnosis cannot be made before death; consequently, unless a postmortem examination is done these cancers do not appear on the vital records. Various diseases, such as pernicious anemia, arteriosclerosis and diabetes, as well as numer-

ous nervous ailments, are known to run in families; and when they can be recognized, much may be done in the way of prevention.

Autopsy records are always useful and often indispensable in the collection of insurance or workingmen's compensation. Many an insurance company refuses to pay a claim, particularly in accident insurance, unless an autopsy is performed. When the company demands a postmortem examination, it has the examination performed by its own pathologist, who cannot help being more or less biased by his association with the company. But if the family has already had it done by the hospital pathologist, it has the accurate observations as interpreted by a man who does not have any obligation other than that toward the hospital and the family. The hospital pathologist, with his experience and interest in his specialty, is at the service, without charge, of the friends or relatives of patients who die in any modern first-rate hospital. If this service is not utilized, the relatives have failed to embrace all the opportunities for service that are open to them.

Honest, efficient physicians desire postmortem examinations in as many as possible of the deaths occurring in patients under their care. The greatest medical men of all time have been those who have followed their unsuccessful cases through to the thorough investigation of the various disease conditions present and who have profited by their failures in that they have learned how to avoid the same pitfalls again. They have correlated these observations with the clinical symptoms and the results of their own physical examinations. From each case such careful physicians learn and check the results of their treatment and modify it intelligently in the future cases which they may have. With each such case they grow in knowledge, experience and effeciency, and can return to other members of the family as well as to other patients more and more intelligent care. Since the majority of the people will at some time need physicians and their knowledge, every one should be vitally interested in the increase of knowledge for the physician and in the development of medical science.

After graduation from the medical school, a young physician has acquired only the fundamentals of the knowledge necessary for the successful practice of his profession and is just beginning to learn by experience. All through his professional life he must continue to learn and must add to his store of knowledge, year by year, through keen observation and study. A large part of his inspiration, experience and knowledge must be gained from his association with modern hospitals with which he is connected. He must attend examinations of cases of other physicians as well as of his own; he must hear discussions and case reports of interesting cases given at the hospital staff meeting. Of those cases the most profitable are completed by autopsy reports. Consequently the autopsies performed at any hospital contribute materially to the experience, knowledge and resulting efficiency of the physicians on its staff. This is particularly true of the young physicians who are living under the roof of the hospital and working long hours without salary other than their living and their experience. During the year of internship, the young physician lays the foundation of his future success and efficiency. He assists his senior in the treatment of his patients, and he profits alike by the older man's successes and by his failures. Many a well known medical man will say, "I remember a case like that in the hospital when I was an intern, and I have been profiting by it ever since."

Laymen may say, "We are not interested in the training of doctors, either old or young. That is the duty of the medical schools. We pay well for medical services and have a right to expect the men to be already well trained and efficient." But medical schools cannot accomplish this alone. Physical signs and therapy must be taught on living patients, and in America there is not the legal provision for compulsory autopsies which exists in Europe. The charity hospitals here are kept busy with the undergraduate teaching, so that physicians must learn from autopsies where and when they may find them being performed. Most persons hope to see the world become a better place, as the years go on, and hope to have for their children all the advan- *(Continued on page 664)*

Jack was thrown from his horse less than six weeks before appendicitis developed.

TRAINING FOR ATHLETICS AND HEALTH

CHAPTER VII

BY ALFRED E. PARKER

Are You Mentally Healthy?

"THERE'S a real hurdler, I'd say." The man speaking was a former college athlete, at one time the holder of the world's high jump record.

"Yes, he does look like a real hurdler. The fact is, he always looks good in practice, but he's no good in competition," replied the veteran track coach who had guided many contestants of the Olympic Games.

"What's wrong with him, Coach?" questioned the former high jumper. "Look at the way he is clearing those hurdles. He certainly looks like a champion."

"Worries too much," replied the coach in his characteristic curt manner. "The big track meet is three days away. He's started to worry about his competitor already. By tomorrow night he won't sleep a wink; he won't sleep for the next three nights. By Saturday he will be tired out. He'll look good at the start of the race, but he won't even finish. He's a victim of worry—a useless mental condition—and he doesn't even try to correct it."

And true to this coach's prediction, this hurdler did not place in the big meet.

Here was a college man who had let worry conquer him. Undoubtedly, back in his grammar school and high schools days, this man had started worrying over small problems. This running away of his imagination gradually became a habit. Probably no one told him how undermining a habit was gripping him, and when he reached manhood he was so bound by it that his efforts to stop worrying were fruitless.

It has been only in the last few years that physicians, physiologists and psychologists have fully realized worry's devastating results on the body. This discovery has led to an entirely new brand of hygiene, mental hygiene. It is common knowledge now that unless one has mental health one does not possess health at all. For an unhealthy mind is, in practically all cases, accompanied by an unhealthy body.

Chief among the ills of the mind is the disease called worry, a condition so vehement that it will make a weakling of an apparently strong college athlete. Surely, then, in your quest for health, you should strive to eliminate worry and find mental health. For, if you allow uncontrollable worry to possess you, not only will you have a diseased mind, but you will discover that your body, too, is suffering.

After a time, indeed, incessant worry will sap your store of nervous energy; it will prevent proper digestion, and it will cause you to lose sleep. All this happens because the brain, the nerves and the other organs of the body are so closely connected that when one harbors disturbing thoughts, bad effects follow.

You can check up on these ill results, for example, by observing that sudden fear causes your heart to beat as violently as that of a track man at the finish of a race. In fact, strong emotion of any kind registers an effect on the body. Many experiments showing these results on the body have been made. By means of the x-rays, scientists have photographed the stomach and intestines of a cat while feeding. When no emotional stress was present, the organs functioned normally; but when a dog barked in the next room, it was found that the cat became tense and that the natural onward motion of the food in the stomach and intestines was stopped.

Besides the effect that either worry or fear has on the body, it also injures the mind to such an extent that it is quite likely to make one a coward. When Theodore Roosevelt was a boy, he had a real fight to conquer cowardice. He was timid; a fighting soul did not come naturally to him. Then, one day, he read in one of Marryat's novels about a sea captain who admitted that once he was afraid, too. But this captain, so the story goes, determined that he would appear unafraid. Daily he acted brave, and to his surprise he became brave; he banished fear. In a like manner, Theodore Roosevelt, the boy, resolved to build up a fighting soul by appearing unafraid. This he did, and later, in manhood, it is reported of him that he was fearless; he did not seem to know that fear existed.

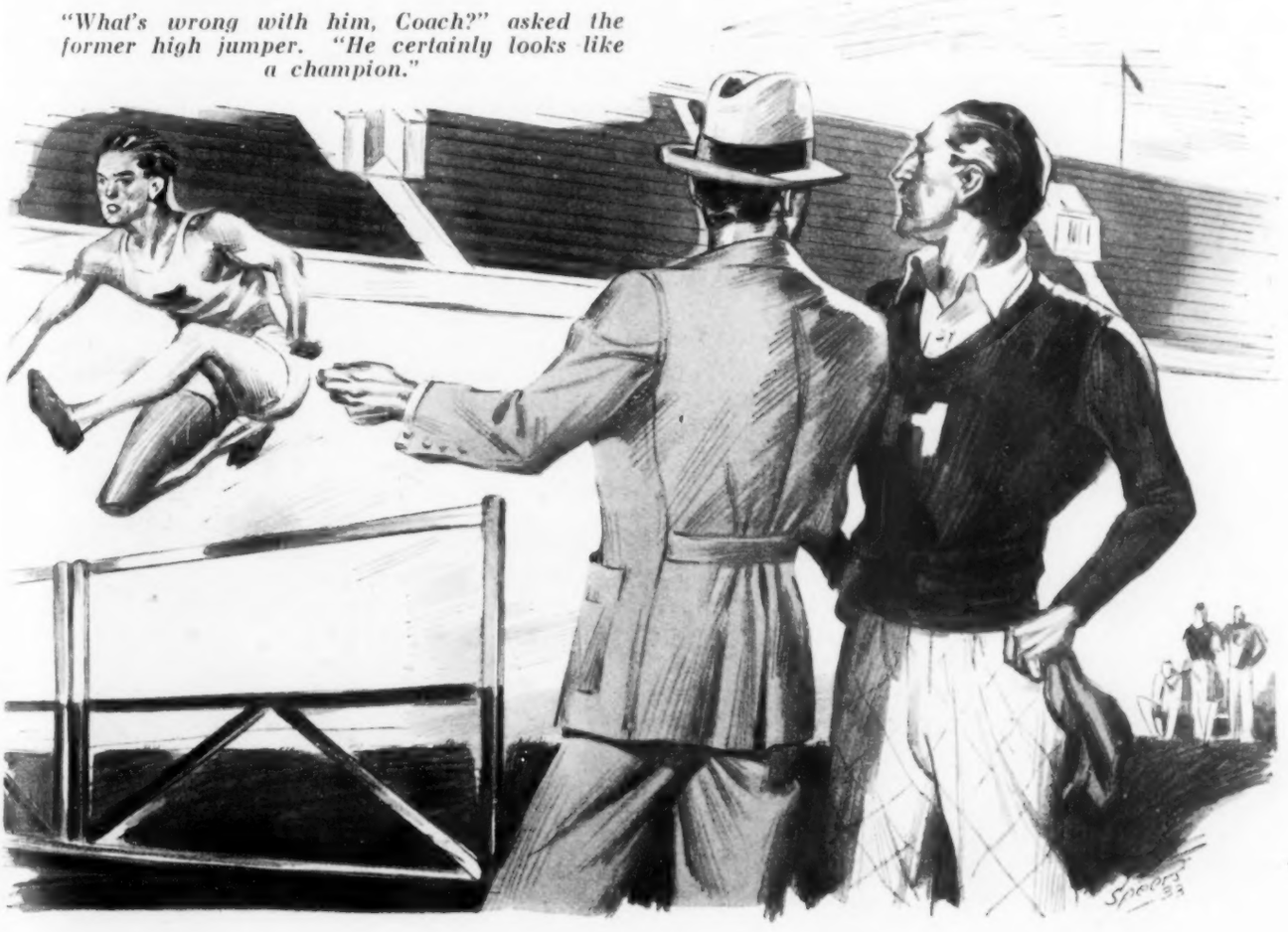
You, too, can conquer worry by just such a mental attitude as Theodore Roosevelt developed. Dwell on the thought, when worry tries to take possession, that there is really nothing to worry about. In fact, strange as it may seem, what one worries about seldom happens. This is true largely because worry is misguided imagination, and imagination is a mental process that soon runs wild if one does not lasso it.

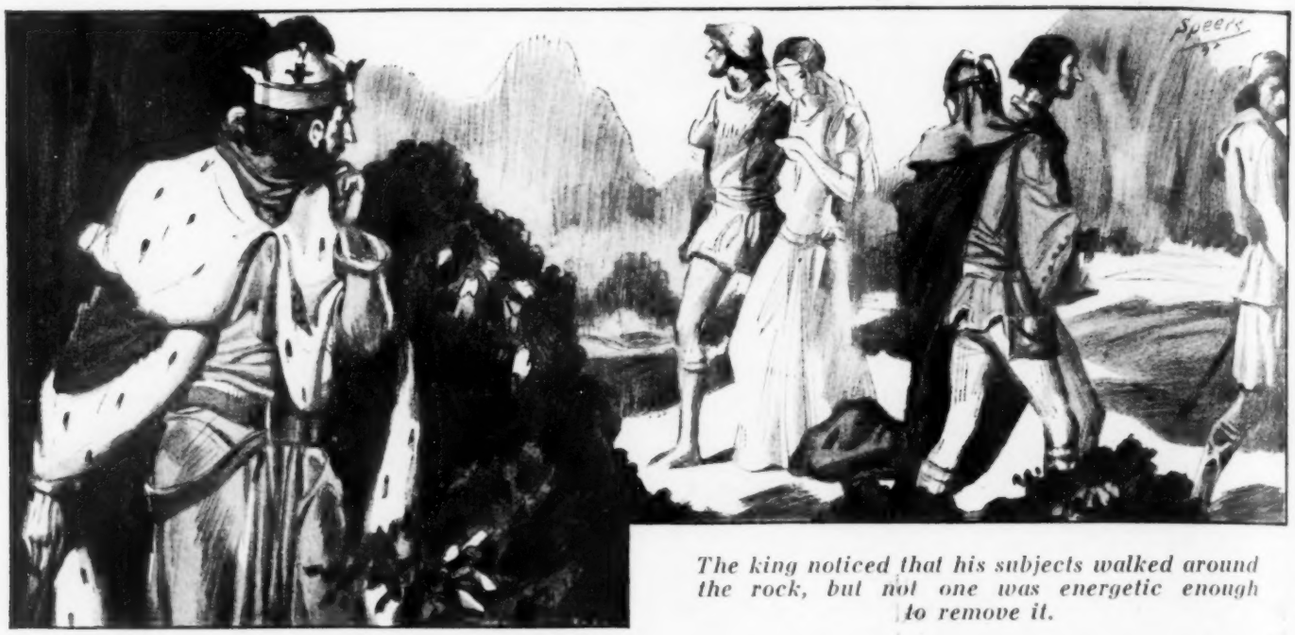
On the other hand, just as worry, fear and bad thoughts weaken the body, so also do good thoughts and good news cause a pleasant, beneficial bodily reaction. Good news, for example, will cause one to dance with happiness; the eyes will sparkle and the cheeks will fill with a lively, reddish color. Moreover, pleasant surroundings, enjoyable friends, and interesting books to read, all bring a feeling of happiness that makes the body tingle with health.

Furthermore, not only does a healthy mind help maintain a healthy body, but a healthy body usually results in a healthy mind. If you are ill, have eyestrain or poor posture, the mind becomes discontented. Somehow you feel fretful, and your thinking does not seem to be as clear as it should. Then, perhaps, on the suggestion of a friend or a medical adviser you indulge in an enjoyable bodily activity such as an outdoor game, and lo, you find you are mentally wide awake. Many a man who thought he could spend all his time at mental work has had just such an experience. He has found that without physical exercise it is impossible to keep the mind clear and active. But you, profiting by the past experience of men, should never be guilty of such an error. Inasmuch, then, as mental health is affected by the condition of both the mind and the body, it becomes a duty to cast away worry by engaging in some pleasurable type of bodily exercise.

There are, however, other bad mental habits besides worry and fear. Consider the habit of shirking a hard task, for instance. Some boys

"What's wrong with him, Coach?" asked the former high jumper. "He certainly looks like a champion."





The king noticed that his subjects walked around the rock, but not one was energetic enough to remove it.

start at an early age to dodge all the difficult tasks that come their way. They do this so often that they actually come to believe they are not capable of tackling a hard problem.

Admiral Dewey wanted to shirk a hard task during the Spanish-American war when he was ordered to take charge of the fleet in Pacific waters. He wanted to avoid this task because it was hard for him to keep away from Cuban waters where he believed all the big battles of the war would be fought. But early in his training Admiral Dewey had learned to do hard jobs without complaining, so he sailed into Pacific waters, as he fully believed, away from the war, away from all action. It was a great blow for him; but fate had a real task ahead in the battle of Manila Bay, one of the decisive battles of the Spanish-American War. Had Admiral Dewey's early training been such that he had developed the habit of turning from unpleasant jobs, the world might never have heard of him.

Another habit which destroys mental health is idleness. Mental laziness, or mind wandering, not only causes the mind to deteriorate, but also makes the body suffer from lack of activity. Probably no other human trait is so common as laziness. Constantly, one must confront this enemy to obtain mental health.

This disease of laziness reminds me of the king who discovered that on a certain road the traffic was going two ways because of a medium sized rock which had somehow been placed in the middle of the road. Two new strips of road gradually appeared as the subjects of the king walked around this rock. Not one of the passers-by was energetic enough to remove the obstacle.

Now when the king saw that his subjects were too lazy to remove this obstruction, he decided to teach them a lesson. So he hired a mason to chisel a hole in the under side of the rock, and in this opening he had him place a jewel of enormous worth. The subjects not knowing, of course, what the king had done, continued in their laziness, passing around the rock each day.

Years later the king became seriously ill. He called his aides to his side and gave instructions that when he died the funeral procession should pass along the road but not around the rock. According to the king's wish, his most faithful servant was to roll the rock away, and as a reward for his hard labors he was to have what the stone contained. And when the servant rolled the rock aside and found the priceless jewel, there was much regretting among the subjects, for each reflected that he might have been the possessor of that jewel. Mental laziness, resulting in regrets such as the king's subjects harbored, is a habit you must early master if you would have physical and mental health.

Going almost hand in hand with mental laziness is self pity. Self pity causes an individual to think that his lot is the worst in the world and that luck is all against him. However, all that such an individual has to do is to look around a bit and he will find persons who are much worse off than he. No matter what your lot, you can find others who make your station in life look like that of a king. Self pity is easily erased, too, if one will but read the biographies of great personages; their minds are healthy and active, with no room for self pity.

Fortunately, in seeking mental health, it is not necessary to spend all the time battling with these harmful mental habits, for one can spend one's efforts much more profitably acquiring good mental habits. To do this, it is necessary, of course, to start with the right mental attitude; that is, you must determine to think straight, to play the game of life fairly and to accomplish the task before you. With such an attitude

taking command of your thoughts each day, you ought to be the possessor of health.

Undoubtedly, too, in this search, you will find that your mental health will quickly improve when you have once well established the habit of cheerfulness. Cheerfulness puts your mind in a state of clear thinking; it shuts out worry and mental laziness and self pity; it is a tonic bringing about a magic cure.

Yes, cheerfulness makes for vigorous mental health, for physical health and for success. One young man in a certain big department store in New York City discovered that all this was true; he found that there is, indeed, a magic in cheerfulness. It was early on a cold, wet morning, and the clerks in this huge store were idling around talking to one another when a little old lady, queerly dressed, entered and wandered around unnoticed. None of the clerks seemed to care to pay any attention to her, until one young man saw her, and with a vigorous step and a cheerful smile he waited on her, apologizing for not having attended her sooner. In a pleasant manner, he secured the article the lady wanted.

Escorting the little old lady to the door, the clerk helped her with her packages and umbrella. Before she departed she asked the young man for his card; he gave it to her in the same cheerful manner.

Several days later the store received a large order from this lady for complete furnishings for a palatial mansion in Scotland. And with the order was a request that the "cheerful young clerk" should be sent to Scotland to take complete charge of the interior decorating. When this request was received, the manager of the store protested that this young man was their most inexperienced clerk. But the little old lady was firm, insisting that this particular clerk should be sent immediately to take charge of the work.

If this young man had been grumpy, if he had walked up in a gruff manner, do you think that the little old lady, whose name was Mrs. Andrew Carnegie, would have requested that he be sent all the way to Scotland to supervise the furnishing of one of the world's richest estates? No, indeed, but this young man possessed mental health which affected his attitude, his bearing, his physical health; and Mrs. Carnegie, noticing all this, determined to reward him for his attainment.

Closely associated with this habit of cheerfulness is the habit of achievement, a habit which, once acquired, never allows the mind to sink into the rut of despair or laziness. Ty Cobb possessed this habit of achievement to such an extent that it worked automatically with him. This story is told about him:

Ty was on first. The Tigers were playing New York, and they had scored so many runs against New York that the crowd had lost all interest in the game. Bill Donovan, coacher at first base, urged Ty to step off base, be tagged and end the agony of the fast mounting score. Ty agreed to do this, and stepping from the base, he stood there with his hands at his side.

Just then the catcher hurled the ball to first, and what ensued goes down in history as one of the most expert bits of base-running ever to be accomplished. For the instant that the catcher threw to first, Ty started for second. Back and forth, between first and second he ran; and when one of the New York infielders threw a trifle wild, Ty made one of his famous slides, landing him safe on second.

After the game was over, Ty was asked why he did not do as he had agreed and let them tag him out at first. To this question, the famous player smiled and replied, "I couldn't stand there and let them tag me. The moment I saw that ball coming toward first I made up my mind that if they got me they would have to work for it." So completely had the habit of achieving become a part of his mental processes, it was impossible for Ty Cobb to stand still and not make the effort to succeed.

And surely you, as you strive for health, will want to develop a mental attitude similar to that of Ty Cobb. Attaining this high type of mental health is largely a matter of establishing the right habits. Unguided, you may develop habits of worry, of idleness and of shirking all hard tasks; but, once headed for the goal of health, you will spend your time attaining habits of cheerfulness and achievement. Your mental attitude will be such that your mind will never become diseased.

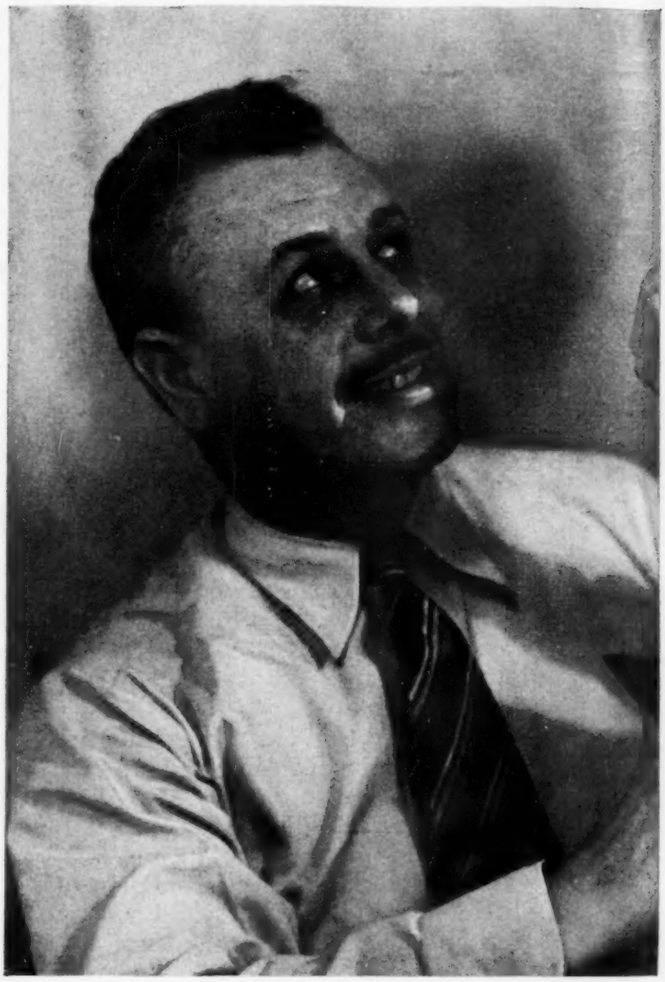
(To be continued)

Disastrous Ambition

The Foundation of an Unhappy Life

By

DONALD A. LAIRD



"Children need not only a father whom they can admire but also one whom they can learn to know. There is no substitute for such comradeship of father and son."

"I AM A FAILURE; I am not able to do all I want to; I cannot be what I want to be," countless thousands of men and women say to themselves. This self imposed stamp of inferiority blights perhaps every third life, sapping enthusiasm, warping desires, robbing happiness and worst of all actually lowering accomplishment by frightening its victim from undertaking to do things he could do admirably.

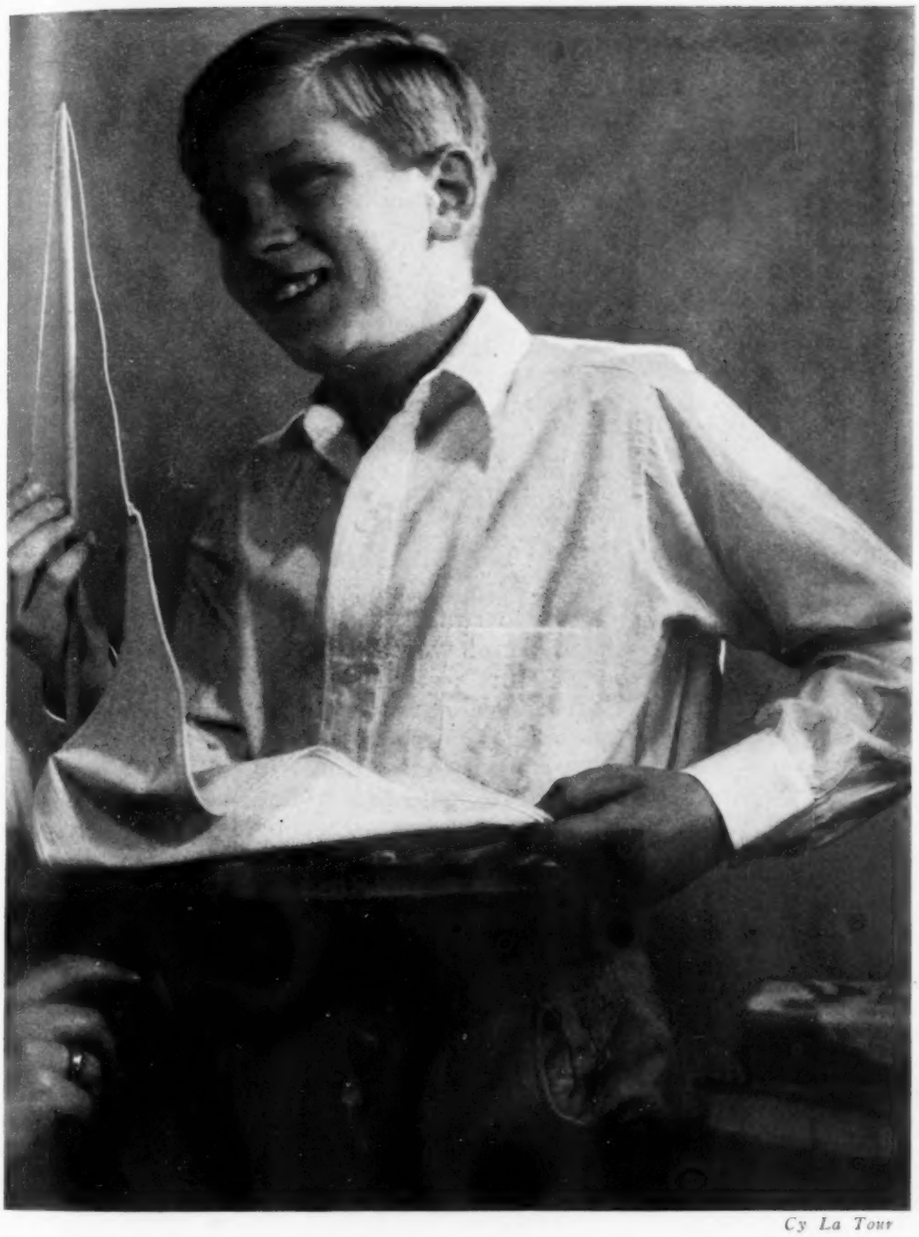
Too much ambition is the cause of this pitiable but unnecessary state of mind. It is a frame of mind brought about by thinking; yet when thinking is properly directed, it can allay the condition to a large extent in most, and entirely allay it in many instances.

Ambitions are started early in life. They begin in the flush of adolescence when the individual is immature. This immaturity usually means that his life ambitions are not merely visionary and idealistic but are impractical and fallible.

It is unfortunate that parents often encourage their children to be some one great, to do something great, to make a great sum of money. Statistics show that scarcely 1 person in 50,000 can reach these goals; therefore parents of the remaining 49,999 are plainly encouraging an attitude in their children which not merely makes them greedy and selfish but also places them more at the mercy of a sense of failure later in life when these impossible and unwarranted ambitions are impossible of achievement.

Of course, parents often deprive themselves and suffer hardships to help their children closer toward their ambitions. Homes are mortgaged, rattletrap old automobiles are kept and old clothes are worn in order to keep a son or daughter in college. Family funds are scraped together to supply capital to set up a son in business much younger than he should be. Love of children and too solicitous assistance in furthering their ambitions wreck families as well as the children themselves.

This disaster can be prevented in a large degree if parents more wisely direct ambitions along more reasonable channels. If every boy were a physician or a lawyer, or every girl a novelist or an opera star, this would be a sorry world. Yet the professions are overcrowded, so that it is increasingly difficult for even the best trained and most skilled to make an average living; surely this is immutable evidence that ambitions are not only overweening but also disastrous. Ambition kills the goose that lays the golden eggs.



Cy La Tour

The time to guard against this harmful state of mind is during the years when almost cataclysmic changes are taking place in the development of the young man or woman, the years from 12 to 20. In doing this, our entire national scale of values may need a severe overhauling. Disavowing titles and royalty in our Declaration of Independence and in our Constitution, as a people we still appear to want to make royalty out of our children. The good life, the life of useful service, needs again to become as enticing as the spectacular trappings we wish for our children in liveried servants, in cruising yachts, in hundreds of employes and in half a dozen town and country houses.

An honestly gained livelihood, a well deserved respect for one's character, hygienic comforts, and the time and disposition to play should be the essentials desired. Instilling the ambition for more than this will inevitably result in most instances in dissatisfaction and unhappiness from thwarted ambition. Yet parents have been known to commit crimes in order to obtain money to foster an unwarranted and unnecessary ambition of their children. And in the South, Negro families will live in poverty in order to be able to pay for a wheezy organ on which the youngest daughter can take lessons.

Fathers, striving to achieve their own youthful ambitions, sometimes neglect their own children and families to have time to make professional or business progress on golf courses and in club rooms. Mothers, trying to give their children a "good" social background, attend an endless series of social functions themselves, neglecting the close guidance and attention to their own children which are essential for building a serious yet sensible ambition in their breasts. Ernest W. Groves, distinguished social psychologist, comments that children "need not only a father whom they can admire but also one whom they can learn to know. There is no substitute for such comradeship of father and son, and no parent's obligation is satisfied by merely providing material resources."

Young people are liable to be led into thinking that they should do wonderful things while they are still young. Intentionally or not, parents encourage this belief. In place of this it should be pointed out that accomplishments, even the modest accomplishments which should be the typical ambition, require long years of building and preparation to achieve—long years perhaps, but not unhappy years when the ambition is reasonable and thereby fairly certain of fruition. It should be remembered that Handel did not write his "Messiah" until he was 56, that Wagner's "Parsifal" was not written until he was almost 70, and that Verdi's "Ave Maria" had to wait for creation until the composer was 85. Michelangelo's "The Last Judgment" was painted after he was 60, and Sir Joshua Reynolds' masterpiece "Mrs. Siddons" when he was 61. Milton did not begin his "Paradise Lost"

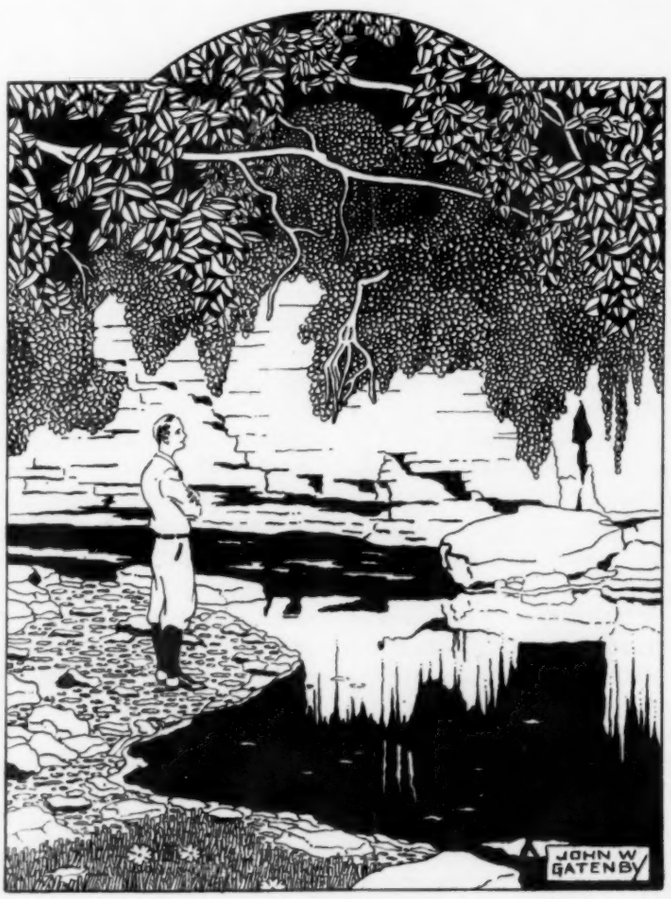
until he was 50, and Goethe did not write the second part of "Faust" until he was past 80. Even our old favorite "Robinson Crusoe" was not written by Defoe until he was almost 60.

Too much should not be expected too early, natural as it is to desire young geniuses in every family tree. Long years of work are essential as a rule. Eighteen years' work were necessary for George Stephenson to produce the first locomotive, "The Rocket." Goodyear struggled for years to vulcanize rubber. Edison himself, assisted by a large corps of associates all over the world, searched for years to produce the filament for the electric light. The average age when 137 inventors of the present day "arrived" was 47. Young ambitions seeking immediate results have no justification.

Neither should it be expected that one's ambition should be fixed and unchangeable. When Roy Chapman Andrews was 10 years old, he knew that he wanted to be an explorer; but he is an exception that simply proves the rule. The late William James, dean of American psychologists, wanted to be a great prize fighter, then a philosopher, a heart breaker, a surgeon, and a multimillionaire.

At the universities of Columbia, Dartmouth and Minnesota about half the students change their vocational choice after entering college. This is a desirable sobering-up of ambition. Even 16 per cent of persons in "Who's Who" have been in more than one vocation; hence changing one's ambition is far from a mark of inferiority.

Probably more persons should change their vocational ambitions. Prof. Harry W. Hepner of Syracuse University has found that more than half of mature adults would change to another vocation if they could, while only one fourth are unqualifiedly satisfied with the vocation in which they are. The greatest number of changes in vocational ambition are made between the ages of 25 and 35. And many of these disappointing changes could be avoided entirely if the original choices had been made with not less ambition but with a more reasonable ambition.



One should be content with less and should not call oneself a failure because of a change in ambition. The move may require effort, for it involves changing and improving all one's twenty-five or thirty-five years of thinking and habits of ambition. Only a few can have the all-including ambitions of the New Jersey minister who is also blacksmith, glass sign manufacturer, gas station owner, insurance agent, harmonica player and coroner.

During a period of unusual prosperity, budding ambitions tend to hang around the idea of making great personal wealth rather than to cluster around the idea of pleasurable service. Franklin, Hamilton, Lincoln, Ford, Pasteur, Beethoven, Schubert, Dickens, Chopin, Hoover, Al Smith, Ramsay MacDonald and Thomas Carlyle all started without the handicap of wealth; and none worked for the goal of mere wealth. Henry Ford has certainly made enough money to satisfy the person interested merely in personal wealth; he derives his enjoyment not from wealth but from making many inexpensive cars and providing employment. Walter P. Chrysler built one of New York's skyscrapers not to make wealth but "because I like to build things; I like to do things. I am having a lot of fun going thoroughly into everything with the architect, planning something here, changing something there."

It is estimated that the average inventor receives only about $30 a week from his patent.

Earning a living must, of course, be considered; but gaining wealth should be neglected in forming ambitions. Wealth seldom can serve others; it cannot bring happiness of itself; it cannot prevent suicide. Poverty does not mean failure; wealth does not mean success or joy.

Be reasonable in what you should expect from yourself and from your children. It is worth taking a little time to think over your goals, altering them here and there so that an unwarranted sense of failure can be cured or avoided and so that ambition becomes a really useful force and not a greedy thing that can only consume itself.

Eradication of Tuberculosis from Cattle:

A Public Health Measure

By J. ARTHUR MYERS

Courtesy Sheffield Farms Company

THE RELATIONSHIP between man and the domestic animals might be termed mutually advantageous. The animals contribute largely to man's welfare, and man in turn puts forth much effort to insure the perpetuation and betterment of their species. If for any reason a species or a certain group of a species of animals becomes dangerous, man attempts to eradicate it or remove the dangerous element. For example, a species of mosquito of no known value to man but found to transmit malaria or yellow fever is attacked with intention of extermination. When the gray rat was found to play a rôle in the transmission of bubonic plague, extermination of the species was instituted. However, when the dog, so valuable to man, is found to transmit rabies, there is no thought of rendering his kind extinct. The destruction of the dangerous individuals suffices.

Man Declares War on Bovine Tuberculosis

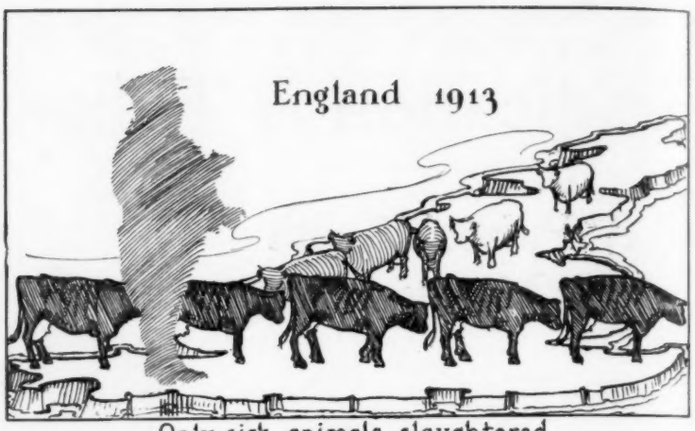
Cattle are so valuable that when diseases transmissible to man, such as Malta fever and tuberculosis, attack them, man does not seek to exterminate the species but is willing to go to the limit of his mental capacities to eradicate the diseases. This spirit has been manifested in the last decade and a half in the most effective tuberculosis control demonstration the world has ever seen. This campaign has been waged for the welfare of the human family. The owners and producers of livestock, whose numbers bulk large, were facing terrible losses. Their future must be insured. The meat supply and the dairy foods of the human family were threatened. This endangered the public health of the nation. Although much has been said about overeating of meats and about the rôle they play in producing high blood pressure in man, no scientific evidence based on actual experiment has been convincing as to the validity of such statements. Meat still is an essential part of man's food requirement.

To remove the dairy products from the country would immediately throw the nation into a dangerous position from the standpoint of deficiency diseases. Therefore the future welfare of the nation depends a great deal on the animals providing man with meats and various dairy products. But when the meats and dairy products became contaminated by reason of disease transmissible to man from the bodies of the animals producing them, a great public health problem appeared.

Bovine tuberculosis was brought to this country through the importation of infected animals and then was quite widely disseminated through the nation's animal herds. When the fact was well established that the bovine type of tubercle bacillus was responsible for much tuberculosis among children, it was obvious that some drastic steps must be taken to reduce tuberculosis in animals providing food for children.

Polluted Dairy Products May Transmit Disease

If this disease were allowed to continue to spread among animals, the time would arrive when practically all cattle would be harboring tubercle bacilli. Indeed, in some parts of the country this point had been reached in certain herds. The more tuberculosis among cattle, the greater the contamination of dairy products and the larger the number of tubercle bacilli entering the bodies of human beings. Since dairy products constitute a large part of the diets of children, few if any under such conditions would escape the bovine type of tubercle bacilli.



Only sick animals slaughtered

Practically no change in tuberculosis situation since 1913

In the early days of this work, only those children with manifest tuberculosis, such as discharging cervical lymph nodes, hunchback deformities and other involvements of the bones and joints, were thought to have been definitely harmed by bovine bacilli. In fact, some argued against the eradication of tuberculosis from cattle on the ground that we would remove the greatest immunizing factor in the country. Those were the days when it was believed that the individual who reacted positively to a tuberculin test but in whom no evidence of so-called clinical disease was found was definitely immunized against tuberculosis. Those who argued for the continuation of tuberculosis among cattle on this ground were never willing to state what an immunizing dose of bovine tubercle bacilli would be for a given individual; nor did any one dare prescribe such tubercle bacilli in measured doses by mouth or hypodermically. This fact materially weakened the argument, since in nature there was no way of controlling the dose of bovine bacilli.

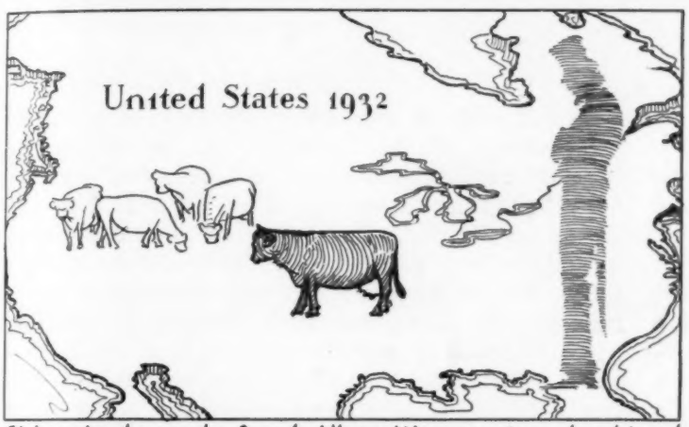
Further observation revealed the fact that a positive tuberculin reaction in a child or an adult indicates allergy or hypersensitiveness and gives no information concerning immunity. In fact, immunity in tuberculosis is something for which there is no biologic test. Further investigation revealed the fact that allergy or hypersensitiveness to tuberculin is a liability rather than an asset and that it is only in persons who have such allergy that the destructive type of tuberculosis develops, whether it is in the lungs, bones, joints or elsewhere in the body.

With this fact well established, there was no longer any basis for the argument in favor of continuing tuberculosis among cattle in order to immunize children. The destruction and deformity from the bovine type of bacillus, which had been recognized for a long time, should have been enough to settle the argument even if medical science had not learned of the hypersensitiveness which it produces in the bodies of those who appear to be well.

For a long time it was argued that exposure to tubercle bacilli is dangerous only for children. At present more than 50 per cent of young adults in parts of this country have been protected from tubercle bacilli all their lives and therefore do not react positively to the tuberculin test. To allow them to take bovine tubercle bacilli into their bodies in sufficient numbers to cause allergy is to jeopardize their future health, for every one who reacts positively to the tuberculin test possesses a focus or foci of tubercle bacilli and is a potential host of the destructive type of tuberculosis. Therefore it is no safer for adults reacting negatively to the tuberculin test to take contaminated dairy products than it is for infants and children. In fact, the child tolerates the first infection of tubercle bacilli well. This is true regardless of the type of tubercle bacillus. Of those who become infected in infancy and childhood, only a small percentage fall ill or show deformities during those age periods; but by reason of their infection, which has resulted in hypersensitiveness, they fall prey to the disease in its most destructive form during the teen ages and the twenties. In fact, in this country although much has been said about the decreasing tuberculosis death rate, the disease is still the first cause of death in that important age period of life from 15 to 40 years.

The attack made on tuberculosis among animals has been sound from its beginning. It was based on the fundamental principles of ultimate eradication. One group argued for pasteurization of milk and thorough cooking of meats as a means of protecting the human family against the bovine type of tubercle bacilli. There are definite discrepancies in such a procedure. In the first place, it does not stop the spread of tuberculosis among animals. The losses to owners and producers would continue to increase. Another objection is that pasteurization ordinances cannot be passed in all cities. With what is called present-day enlightenment there are still cities of considerable size in which

Sick animals and all other positive reactors slaughtered



Sick animals rarely found. All positive reactors slaughtered

no pasteurization ordinance is in effect. Where such ordinances have become effective, it has not been an uncommon experience to find the practice of faulty technic of such a degree that the tubercle bacilli are not destroyed. Again one must not overlook the fact that a considerable part of the population of this country resides in villages and on farms where one could never hope for sufficient health education to insure the destruction by heat of all bovine type tubercle bacilli in the dairy products and meats consumed by these persons. Although pasteurization is an excellent procedure and has done much to protect the human family against the bovine type of tubercle bacilli, it is not striking at the source and therefore must always be looked on as a temporary measure.

It does not appear probable either that any immunizing agent among animals is likely to be effective. There is great diversity of opinion regarding the effectiveness of BCG as an immunizing agent for cattle, but from all that can be learned from the literature and from those who have had experience with it, the evidence is preponderantly against it. The fact is well established that the tubercle bacillus changes with its environment. BCG was originally a bovine strain of supposedly usual virulence. By changing its environment, it lost its virulence; by returning it to its old environment, it seems probable that it may regain its virulence. Perhaps this will not occur in the lifetime of the individual animals to whom it is transmitted, but is it not possible that before death they will transmit it to others so that it may live in its former environment amply long to regain its virulence? Medical science knows too little about immunity in tuberculosis to depend on anything to immunize cattle or human beings until it has been tried not a year or five years but for more than two decades.

Those interested in the livestock industry developed the soundest public health policy of all time when they laid down their principles for tuberculosis eradication in animals. They did not debate the pros and cons of the tuberculin test; they simply applied it, slaughtered the cattle that reacted positively and were quickly convinced that the test was highly specific. They then recommended its administration to animals everywhere. They did not compromise either when it came to the question of slaughtering the positive reactors. They did not need to compromise; they possessed the facts. They looked on every positive tuberculin reactor as a present or potential reservoir of tubercle bacilli. They exercised sound judgment when they went before state and national legislatures and presented bills which if enacted into law would provide for compulsory tuberculin testing of animals, slaughter of the positive reactors and compensation of the owners. With such laws the work began in earnest, and the accomplishments of such a brief period of time are phenomenal.

When one looks at the map of Jan. 1, 1932, of the midwestern states and realizes that the campaign to eradicate tuberculosis in livestock was not initiated until 1916, one marvels at the accomplishments of this group. Michigan, Ohio, Indiana, Wisconsin and North Dakota are now accredited, and Illinois is nearly ready for accreditation. Seventy-five per cent of the counties in all the states of the corn belt are now accredited. The removal of tuberculous dairy and breeding cattle has increased milk production per cow and has reduced the number of beef and pork carcasses condemned as inedible at northern markets 70 per cent in 1931, as compared with 1916. This has been to the advantage of all producers; it represents a saving of $3,500,000 for the year 1931 alone.

These accomplishments have been great from the standpoint of the saving of animals and increase in meat and milk production, but what has been accomplished by way of tuberculosis control in the human family? I am convinced that here the accomplishments of these states have been even paramount because of the greater value of human life and health and because of the longer time a tuberculous human

being has to disseminate tubercle bacilli. This contribution to the control of tuberculosis of the bones and joints among children is acknowledged by the medical profession everywhere. This also applies to tuberculosis of the cervical lymph nodes, formerly known as scrofula. It is a well established fact that these conditions are sometimes caused by tubercle bacilli of the human type; therefore the complete eradication of tuberculosis among animals will not prevent every case of tuberculosis of the bones, joints and cervical lymph nodes; but already work has been done that has made discharging tuberculous cervical lymph nodes a rare condition in some parts of this country. In the Lymanhurst School for Tuberculous Children, in which more than 10,000 children were examined for tuberculosis, this has been rarely found. Tuberculosis of the bones and joints has also been found far less frequently than was anticipated when the work was begun eleven years ago. In some tuberculosis dispensaries these cases have become so rare that there is not a sufficient number of them to teach the students of nursing and medicine the essentials of diagnosis and treatment. A striking observation is that when such conditions are found to exist they frequently come from areas where pasteurization has not been practiced and where area testing of cattle has been impeded.

Every Positive Reactor Is a Potential Host

Perhaps the greatest accomplishment through these efforts has been the appreciable reduction in positive tuberculin reactors among children and young adults. The opportunities for tubercle bacilli to reach the human body have been tremendously reduced through pasteurization and area testing. When the incidence of positive human reactors was extremely high, no doubt many of them had been infected with bovine tubercle bacilli. Now it is common to find no more than from 20 to 30 per cent of girls and boys even of high school age reacting positively to this test. Since 1928, only one in three of the girls and boys entering the University of Minnesota has reacted positively to tuberculin. At the University of Wisconsin the incidence of positive reactors is somewhat less than that at the University of Minnesota. I am inclined to believe that this is due to the better control of tuberculosis among animals in Wisconsin. As every person reacting positively to tuberculin is a potential host of destructive tuberculosis, it is obvious that these workers have done much through reducing the possibilities of infection in the human family to prevent human tuberculosis carriers and spreaders of the future.

This preventive work is still being opposed by a small group. As long as the tuberculin test brought to slaughter large numbers of animals with widely disseminated disease and unmistakable spreaders of tubercle bacilli, there could be little criticism; but when through persistence those were weeded out with extensive disease and large numbers with minimal lesions were sent to slaughter, some criticism was voiced on the ground that there is a sharp dividing line between tuberculous infection and tuberculous disease in animals, and that many animals were being slaughtered which might never become ill or be spreaders of tubercle bacilli. In going further with the weeding out process and arriving at that point where a considerable number of the positive reactors did not have lesions sufficiently large to be found by postmortem examination with the naked eye, the criticism increased. These persons were accused of sending to slaughter many healthy animals.

Complete Eradication Is Possible

Those who have made such charges have not been aware of the specificity of the tuberculin test and certainly have had a most limited vision of tuberculosis control. They are still living in the days when an animal had to be emaciated and definitely ill or a human being an unmistakable consumptive before tuberculosis was recognized. A rather recent testing in the state of Minnesota sent animals to slaughter in only half of whose carcasses tuberculous lesions could be demonstrated by macroscopic examination. This resulted in much criticism and condemnation of the method and was interpreted as the best of ammunition for the guns of those opposed to all accepted public health measures. For those who had long labored to eradicate tuberculosis from the animal herds, who know the nature of the disease and who have a true vision of its control, this report was most encouraging. To be able to find the disease by the tuberculin test before it could be seen by the naked eye in 50 per cent of the animals slaughtered was a marvelous accomplishment. But even this was not the ultimate goal of those carrying on the work; they would have been more pleased if demonstrable lesions had been absent in 100 per cent of the positive reactors. Such an observation would mean that the complete eradication of tuberculosis in that particular area was in sight, because the disease was discovered and exterminated before it was a source of exposure. It has been proved beyond doubt that tuberculosis can be completely eradicated from animals, not only from individual herds but from whole counties. Since this is true, it must be possible to eradicate the disease from whole states and eventually from the animals of the nation. This will require a tremendous amount of time and effort, but from the standpoint of its value to the public health of this country it is worth all.

By no means the least of these accomplishments in public health has been the example set for those working in *(Continued on page 668)*

The Dangers of Spider Bites

By Emil Bogen

FEW LIVING FORMS have been so universally shunned and feared as have the spiders. Among ancient records, one finds mention of horrible plagues of these gruesome creatures, and the Bible and Greek and Norse mythologies alike testify to the widespread dislike of them. In the middle ages the fear of tarantula bites gripped southern Europe, and it was centuries before its exaggerations could be curbed. On every continent, centuries apart, tales of the poisonous effects of spider bites have been encountered.

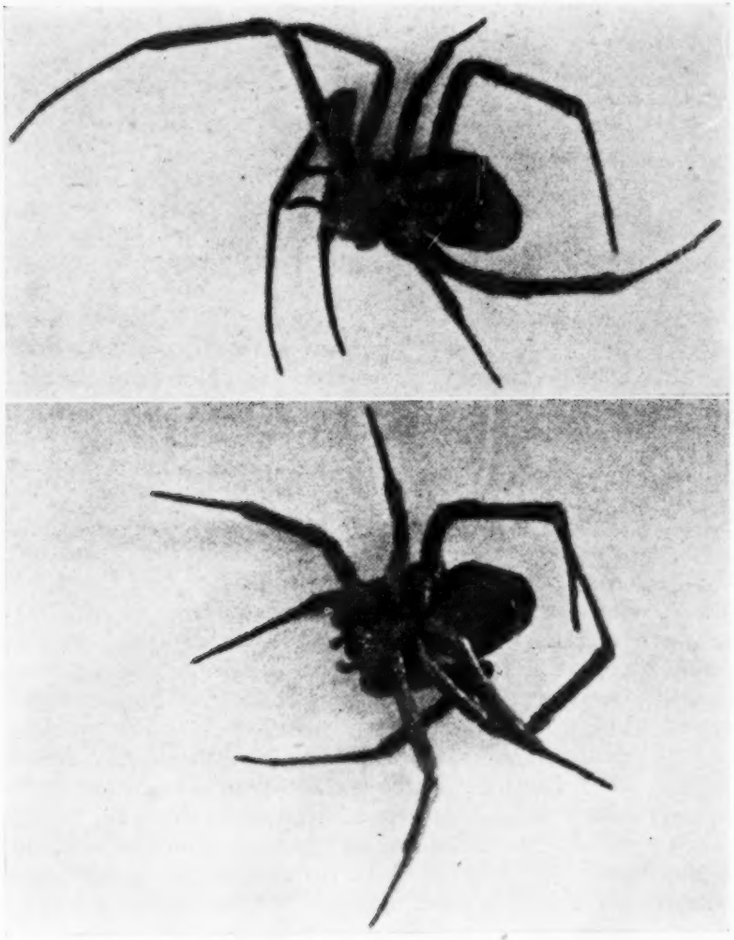
Naturalists have repeatedly attacked these fears as groundless and have emphatically proclaimed that spiders are harmless to man. They have extolled the virtues of the patient, ingenious and artistic spinners and emphasized their value as destroyers of flies and other insect pests. Many volunteers have courageously submitted to being bitten by spiders or have inoculated themselves with the venom to demonstrate its supposed harmlessness. The average text on spider lore has little patience with the stories of poisoning by spiders and with the people who have believed them.

But the defense of the spider is fraught with dangers, and when naturalists in their enthusiasm go so far as to suggest giving so notorious a culprit as the Black Widow the freedom of the house, it is time to review the actual facts of the situation and to note the true extent of the danger.

That the poison glands of spiders secrete materials which are toxic to small insects is generally conceded even by the fondest of arachnologists, although scientific studies of these poisons are still fragmentary. That these substances are also toxic to mammals and particularly to man, however, is frequently doubted, and the ability of spiders to pierce the skin and inject the poison into man is also questioned. It has been asserted that the natural timidity of the spider is sufficient to keep it from attacking or biting a human being. Most of the thousands of species of spiders are probably harmless. Nevertheless, the number of spiders which have been actually observed to bite man, with serious consequences, is sufficiently large to demonstrate that not all of them may be so absolved.

By far the greatest number of poisonous spider bites in human beings have been attributed to the Black Widow, Latrodectus mactans. It is true that a few instances of poisoning caused by bites of other kinds of spiders, particularly the tarantulas and trapdoor spiders, have been reported: but in practically every instance the bite has resulted in local rather than in general symptoms, and in many cases it has been so complicated by infection and other factors that correct evaluation is impossible. On the other hand, the female Latrodectus mactans has been observed in scores of instances and its recognition has been unquestionably established; not only have vivid descriptions of the spider and its markings been given by the patient, but in many instances the actual specimen has been captured and submitted to competent authorities for identification. Moreover, the astounding symptoms developing after this spider's bite are so striking and unique that there seems to be little danger of confusing it with any other species.

Arachnidism, or poisoning from the bite of the Black Widow spider, presents a clinical entity so distinct that the diagnosis should be easily made, once the possibility is considered. More than 300 instances of this condition have been reported in the United States alone, with surprisingly little variation in the descriptions; and the cases reported from Europe, Asia, Africa and Australia all coincide in this typical picture. Following a bite by a black spider with a red mark, excruciating pains develop in the legs and abdomen, and involve all the large muscles of the body, with extreme abdominal rigidity but no real local tenderness. The temperature is moderately elevated; the systolic blood pressure is increased; the spinal fluid pressure is above normal, and there is an increase in number of white blood cells. Accompanying these symptoms, bradycardia (abnormal slowness of the heart beat), increased reflexes, perspiration, restlessness, anxiety and collapse are also frequently observed. A mistaken diagnosis of ruptured duodenal ulcer or acute appendicitis with peritonitis is often made, although even in the absence of a history of a



Latrodectus mactans (about twice life size).

spider bite the differential diagnosis can generally be made by careful examinations if the possibility is only borne in mind. Numerous operations on such mistaken diagnoses are known, and in at least one instance this was followed by death. More than a dozen other deaths have been reported as a result of the bite of the Black Widow; several of them occurred in southern California during the past year. An autopsy performed on one of the patients who died following a bite by this spider failed to reveal any significant pathologic conditions that might be attributed to this cause.

Latrodectus mactans is a shiny, coal-black spider, usually brilliantly marked with red or yellow or both. The female, which is responsible for the poisonous bites reported, is often ½ inch in length when fully grown, and may stretch its slim glossy black legs over as much as 2 inches. The markings vary somewhat, the most constant being a bright red patch, shaped something like an hourglass, on the ventral surface of the abdomen. The abdomen, varying in size and shape at different seasons, resembles a black shoe button although it may have one or more red spots along the middle of the back and over the spinnerets, in addition to the ventral patch. The male is much smaller than the female, is even more conspicuously marked, having about four stripes along each side of the abdomen in addition to the ventral hourglass, and shows the peculiar bulbous modification of the palpi, or feelers, for sexual purposes. The young spiders are much lighter in color but gradually don the glossy black coat in a series of molts over about forty days.

The Black Widow, so named because of its custom of eating its mate, is usually found alone, as it will engage in mortal combat with any other spider placed near it. It builds a coarse and irregular dark web in dimly lighted places where it may be undisturbed. The web is quite characteristic, consisting of straggly, uneven viscous threads running in all directions in all three dimensions, with none of the geometric exactitude that gives to the orbweavers or the sheet weavers their esthetic charm. The egg sacs are generally placed in a somewhat denser part of the web near the upper part or sheltered behind some support.

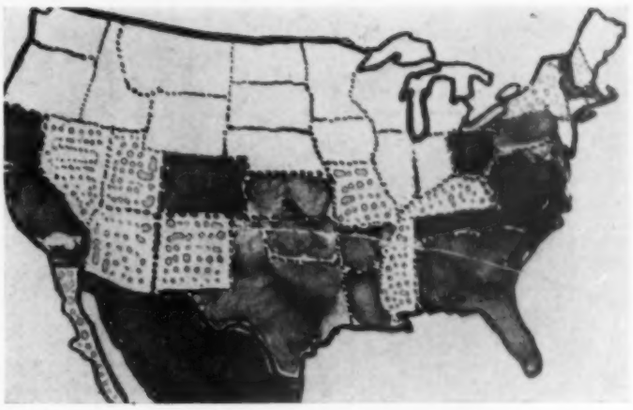
Although the Black Widow is encountered mainly in the southern half of the United States, from the Atlantic to the Pacific coasts, specimens have been reported from such northern states as New Hampshire, Utah, New York, Pennsylvania and Ohio. Instances of serious poisoning from its bite have been reported from more than a dozen states, but the largest numbers of cases have been described in California and Florida. There appears to have been a noticeable increase in the number of these spiders in recent years, as well as in the cases of poisonous bites reported, and possibly a tendency to shift their habitat from rural to more urban districts.

Latrodectus mactans is frequently found in the rafters and corners of little-used buildings, in the basements and attics of unfrequented houses, and in the dark corners of barns and other outbuildings; it has often been seen in outdoor privies, where it builds its web across the seat of the toilet. Occasionally it is found under stones or pieces of wood, or in holes in the ground, in old stumps, bushes or other vegetation. More recently it has been encountered under the high ceilings in factories, in garages, around porches, in furniture, old clothes, under beds and even in automobiles.

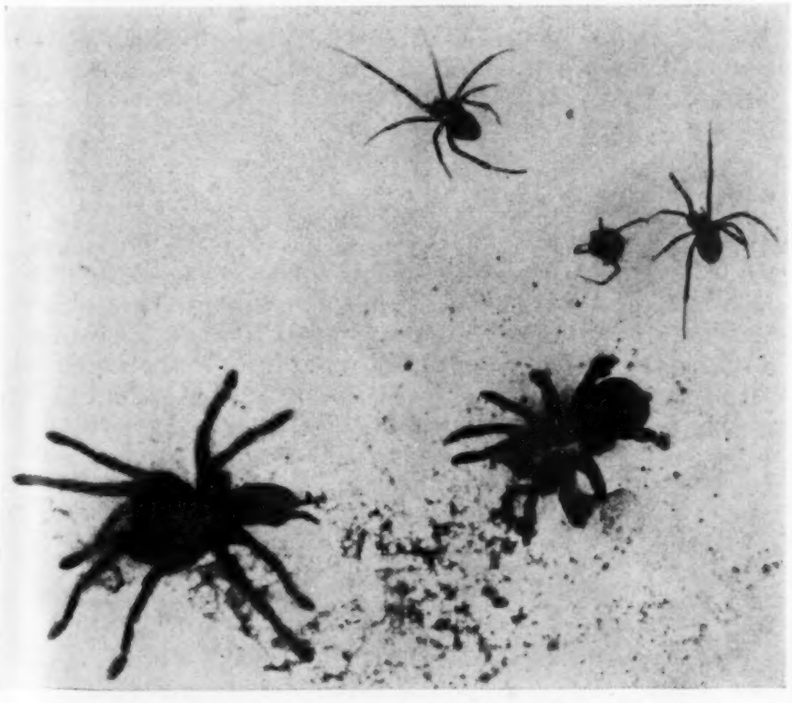
Recorded studies of the venom of spiders are highly contradictory and fragmentary. Many workers have been unable to obtain any evidence of a toxic substance in the spider bite or in extracts of the killed spiders or their glands.

Others have reported most spectacular and impressive phenomena. The recent studies of Troise, who dissected the poison glands from thousands of the spiders before he could obtain a few milligrams of the poison and even then obtained conflicting results from different batches of the material, indicate the extreme difficulty of this investigation. Experiments performed in Los Angeles and at the Olive View Sanatorium, utilizing mice, rats, guinea-pigs, rabbits, cats and chickens, did not show any consistent or striking effects from either aqueous or alcoholic injections of extracts or whole macerated spiders or their glands, although the hemolytic action of an extract of the eggs on rabbit blood cells, as described by Houssay, was confirmed.

Unmistakable evidence of the activity of the poison was obtained, however, by getting the live spider to bite the shaven skin or mucous membrane of a mouse or rat. The hunched posture and sluggish behavior resulting, as previously described for the rat, were found also in the mouse; and death often resulted, in from a few minutes to forty-eight hours. Considerable skill and perseverance were required to induce the spider to bite the mouse, and positive results were not uniformly obtained. The fact that the bite of Latrodectus mactans is not always followed by symptoms of poisoning may be due to various causes. The striated muscle fibers surrounding the poison glands suggest a certain amount of voluntary control of the power of ejecting the poison. The spider may therefore show every evidence of biting a mouse without actually injecting any of the poison and so producing symptoms. On the other hand the spider may, on occasion, empty its entire available supply of poison at one time. This may account for many of the unsuccessful experimental observations, as in the act of catching the spider most of its poison may be spilled or otherwise ejected. Thus in experiments in which the spider was allowed to bite one mouse repeatedly and then was placed on another mouse and observed to bite again, the first mouse usually died, but the second one was generally not affected by the bites. Moreover, at various stages of development there may be decided differences in the amount of poison secreted as well as in the behavior of the spider. Thus spiders that had just laid their eggs, or were about to do so, seemed to give more poisonous bites than younger specimens or older ones; one pregnant female killed two mice by her bites on the same day.



In the spotted areas on the map, poisonous spiders have been seen; in the solid areas, spider bites have been reported.



A tarantula, a trapdoor spider and three Latrodectus mactans.

The Black Widow, by its somber hue and preference for dimly lighted places, is easily overlooked. When it is seen, it is readily recognized. It is easily killed by striking or may be killed by spraying with fly spray or other poisons, although care should be exercised to see that it is really killed and not merely feigning death. Poisoning from its bite in man is extremely painful and may be fatal. The reported cases probably represent less than a tithe of the actual incidence. Appreciation of the seriousness of the condition leads to vigilance in its prevention. Many species of spiders may well be cherished as interesting and useful household companions, but the Black Widow is a dangerous intruder and should be avoided or exterminated.

Six Year Old Bill in the University

By OLIVE STUART

With his pudgy hands in his pockets and his snub nose held high, young Bill swaggered along.

YOUNG BILL, 6 year old undergraduate of the University of Washington, swaggered past the little girl next door on his way to the campus to attend his university course. His snub nose was held high, and his pudgy hands were thrust deep into the pockets of minute pants.

"Cancher play?" the little girl wistfully wanted to know.

"Naw, can't play now. Gotta take a zamnation."

"What for?" she asked, unconvinced.

"For my university course! It's on the schedule. S'long. I'll be seein' you. Can't keep the faculty waiting." And Bill strutted away, fat legs stiff and wide apart, dimpled arms swinging importantly.

Having arrived on the campus, he found his way to the Women's Building, and here a pretty young lady doctor stripped him to the waist and applied what Bill called a "peroscope" to his plump little chest.

"You'll do," was the brief verdict, so Bill shrugged into his shirt and swaggered outdoors to join the rest of the "gang" who had passed their "zamnation." Soon the big enclosed playing field behind the Women's Building, and the natural wooded area adjoining it resounded with the gladsome yells of children at play.

This was Thursday morning.

Two days later Bill quite forgot his dignity as an undergraduate and wept copiously over his breakfast toast, because it happened to be Saturday and he could not continue his university course till Monday.

Bill's course is a demonstration playground course, sponsored by the men's and women's departments of physical education and held during the first term of summer school. It was conceived three years ago by Norman Kunde, who was experienced in playground and physical education activities and saw the possibilities, one might almost say the need, of such a project. He called on Margaret Duncan, who was also experienced in this work, to help him; the summer before last, the playground was started under the supervision of these two colleagues.

A Pioneering Project in Life's Laboratory

It is, in some ways, unique; it is a pioneering project on the part of the University of Washington, for it is used as a laboratory course for students of physical education who are studying observation and play technic. Other American universities have demonstration summer playgrounds, but the children are supervised by experts, and the student-instructors are only allowed to "observe." At the University of Washington, however, the youngsters afford practical experience for the students of physical education.

Miss Duncan is in charge of the girls and tiny boys and their women instructors, while Mr. Kunde supervises the boys from 8 years upward and is responsible for the general supervision of the whole project. For the first week the directors do most of the actual work and the

instructors observe because, as Miss Duncan puts it, "one cannot experiment with live subjects as one could, for example, with an unknown compound in chemistry."

The new instructors are apt to feel a little nonplussed when they are faced with the responsibility of keeping a group moving, even though they have experienced classroom practice on children; and although healthy, normal children run pretty true to form, there are occasional disconcerting exceptions.

For example, now and then a certain type of sophisticated small girl presents an interesting problem. She is bored by companions of her own age and usually has one or two followers who play up to her vanity. One dainty little girl whom I had watched frequently and with amusement was invited by the far-sighted Miss Duncan to join a game for much older girls, who treated her impartially as one of themselves. She was baffled and bewildered, almost to the point of tears, by the intricacies of the game. The next time I noticed her she was in the midst of a happy group of her own age and was the life of the party.

Cosmopolitan Colleagues

From fifty to sixty children are enrolled, and although the idea originally was to serve Seattle youngsters, many of the small freshmen come from far-away places. Bill hails from Vancouver, B. C., Jack from Oregon, and among the distant states represented are Georgia, Minnesota, Wisconsin, Montana, Texas, Utah and California. All children between the ages of 6 and 14 are eligible, the only expense incurred being the payment of an absurdly small fee.

Quite a number of the children have parents attending summer school, and in their cases the advantages of the playground are trebled. Father and mother are free blithely to pursue their own studies, happy in the knowledge that their small child is being cared for, amused and instructed.

As Bill rather neatly expressed it, "A fellow needs a university course, Mum, to wear away the time when you and Dad are busy. 'Sides, it keeps him out of misshif."

The lovely playing field affords ideal environment, and on wet days the most fascinating indoor games in addition to story telling and all kinds of handicraft are carried on in a large airy room in the Women's Building. Going to collect Bill one rainy noon, I arrived during a period of soap carving and clay modeling. Wails of protest filled the room when the 12 o'clock bell rang.

"Gee," a big, red-headed boy exclaimed regretfully, "the three hours go like three minutes. I certainly wish we could stay here all day long."

"So do I," a tiny girl agreed, reluctantly putting away her assortment of clay ducks.

The programs of activities are planned ahead for each week, and the instructors, in addition to their practical work each day, are given time to observe their fellow workers, take notes and criticize. Further, they are required to attend seminar with open forum discussions once a week. This weekly "pow-wow" is of tremendous value and interest. Grievances are aired, pent-up feelings let loose and constructive criticism and praise offered.

I attended once or twice because I was interested on Bill's account; I was both amused and impressed.

During the proceedings, on one occasion, an instructor asked gravely, "What should be done when Jack makes a dandy trench in the sand box, and Bill steps in the middle of it on purpose?"

"An old-fashioned slipper should be freely applied where it would do the most good," was my own silent verdict. But the matter was discussed as solemnly as if it had been some great political issue!

Activities are arranged, and children are grouped chronologically and from physical, mental and psychologic standpoints.

Boys and girls from 6 to 8 years are called Tots; from 8 to 10 years they are known as Midgets, and the 10 to 14 year olds are designated Junior Boys and Girls.

So far, no child has been turned down as medically unfit, but any child who does not appear to be well during class is immediately dispatched to the infirmary; and there he is reexamined by a university physician.

Bill stepped squarely on the new sand trench!

Of course, there are quarrels sometimes, usually on wet, "indoor" days when the reverberations of the walls prove too constraining for lively young undergraduates. But on the whole the youngsters are good because they are definitely occupied and interested.

The various groups are often formed into teams, having their own captain and colors, a yell, a song and a slogan. This arrangement adds a tremendous amount of enthusiasm to competitive activities. Obviously it is much greater fun to play long-base, ring toss, croquet and bean-bag board, or to run races, with the "Rickies" against the "Happies" than it would be for two boys or girls to pick haphazard sides. But this is more for the older children.

The Tots and Midgets are happiest in the sand box and in circle and chasing games, nature walks, dancing and dramatics.

The sand box was, on one hot morning, the scene of a lively dispute. Bill, the youngest undergraduate, was loudly proclaiming his superiority over Jack, one year older.

"I'm 7," Jack announced at last, "and next year I'll be 8." He turned away, regarding the incident as closed.

"Oh yeah?" 6 year old Bill came back quickly. "Well, next year I'll be 8, too. I'm going to skip a year!"

All in the Day's Work

The weekly programs seem to be almost limitless in their scope and variety. Besides many organized games, there are track and field meets, visits to the university museum, grand parades, periods of free play, and the most delightful feature activities. These include processions of imaginary Indians for the Tots, fancy dress parades and pet parades for everybody. The pet parades, especially, are great events.

On certain prearranged mornings, white mice, fat old tabbies, rough-coated kittens, turtles and dogs of every possible brand arrive on the playground and are photographed with their proud owners in one big, happy group. On one occasion a petless small boy, not to be outdone, brought a quaint little jester-doll named Binkie and a stuffed brown pig known as Squeak. In the judging and competitions that followed the taking of the picture, he was accorded honorable mention for having the quietest pets!

Dog races are also held. In one race the small masters and mistresses run beside their pets, holding them. In another the owners of the dogs and the dogs themselves are lined up separately, a short distance apart, the animals being held by other children till the signal is given for the owners to call them.

Sometimes, in another race for the dogs alone, the fastest canine leads a delighted mob of undergraduates on a hair-raising chase!

Fun for All and All for Fun

For several mornings I watched outdoor and indoor activities. I saw Junior Boys playing baseball or tumbling enthusiastically on a mattress set out on the grass, Midgets busy and intent on croquet, dancing or ring toss, and Tots building earnestly in the sand box, playing tag, or creeping with great stealth through the bushes to ambush a party of Indians.

On wet days the picture coloring and paper cutting, the making and dressing of clothes-peg dolls, the guessing and contest games and the story hour more than compensated for any amount of bad weather.

I soon began to appreciate how highly the University of Washington is to be commended for this project. It gives valuable practical experience to students of physical education, a "university course" to a number of eager youngsters and an opportunity for study to parents attending summer school.

One's sole regret, from a mother's point of view at any rate, is that this course does not go on indefinitely!

The Tots crept stealthily through the bushes to ambush a party of Indians.

The Dread of Mastoiditis

By *Julien Dean*

MASTOIDITIS is almost always secondary to some other condition, such as a cold, sinus infection, measles or scarlet fever; in fact, it may follow any infection of the mucous membranes of the nose and throat.

Proper attention to these conditions at the start will in most cases prevent mastoiditis. Earaches should have the attention of a competent physician; usually the family physician can adequately cope with this condition.

Usually when mastoiditis has developed and the x-rays show some trouble, parents become panic-stricken, sometimes to the point where they may not consent to an operation for four or five days and then only at the increasing urgency of symptoms.

This apprehension is entirely out of proportion to the conditions present. It is not my intention to belittle this mastoid condition or the operation required to cure it. I feel, however, that I can reassure many parents that they need not fear the results in this operation more than in many other operations, for the mortality is no greater than in appendicitis when the cases are not complicated.

Parents are advised by all means to pay careful attention to colds in the head and sinus infections. Particularly is it wise to do so early in the course of the disease.

The mastoid operation in a great many instances is a simple operative procedure in which the layer of bone is removed so that the mastoid cells themselves may be removed and adequate drainage established. When this is done at the proper time by a competent specialist, there should not be the terror in the minds of the parents which is so often witnessed.

When parents neglect acute discharging ears for a length of time, complications often arise and render the case much more difficult for the surgeon and decidedly more serious for the patient.

Mastoid operations are advised for three reasons: (1) to conserve the hearing; (2) to prevent brain abscess, and (3) to prevent meningitis. The simple mastoid operation often prevents these serious complications. Consult a competent physician early. Save the patient much suffering and yourself much worry.

Biochemistry:

By
F. C. KOCH

Lavoisier showed experimentally that man burns carbon and hydrogen to carbon dioxide and water just as a candle burns in the air. He proved that the law of conservation of mass holds in both nonliving and living systems.

CHEMISTRY involves the study of the composition of matter and the actions of the various forms of matter on each other. Biochemistry is that branch of science which applies the methods, principles, knowledge and laws of chemistry to the study of the composition of living matter and to all the processes taking place therein. It is often stated that biochemistry is a new branch of chemistry. However, it is just as old as chemistry itself. In fact, from the earliest time, man's interest in himself, his health and his agricultural needs has been, and in fact it still is, the stimulus to the development of chemistry proper and of its subdivisions, organic and physical chemistry.

Theories of the Early Chemists

A review of the history of chemistry clearly shows that coincident with the development of its fundamental laws and theories there have always been involved or implied some biologic, medical or agricultural applications. Paracelsus (1493-1541) considered that life was, in the main, a chemical process; van Helmont (1577-1644) classified diseases as acid and alkaline and treated them accordingly; the supporters of the phlogiston theory of combustion held the view that vital processes are similar to combustion and that man continually exhales phlogiston from his lungs; and finally both Lavoisier (1743-1794) and Priestley (1733-1804) in their classical studies on combustion and oxygen extended their studies to man and animals.

The Ever Widening Field of Biochemistry

The field of biochemistry obviously is a comprehensive one. It includes all the chemical aspects of biologic problems and activities, whether of academic, professional or industrial interest. It is involved in numerous phases of zoological and botanic researches such as fertilization, cell division and growth. Physiology, though formerly largely physical in its mode of attack, is more and more using the biochemical mode of investigation. The separation of the vitamins and hormones, their isolation, the determination of their nature and their mode of action are all biochemical problems. The conduction of a nerve impulse, the contraction of muscular tissue, secretion, respiration, heat formation and excretion are all associated with chemical changes. Internal medicine is depending on biochemical methods and knowledge almost entirely. It is applied in bacteriology, immunology and plant and animal pathology. In agriculture, the production of better and larger crops and of better and more milk and stock are largely dependent on increased biochemical knowledge. In the industries, the methods and information of the biochemist are applied extensively in meat packing, fermentation industries, cheese manufacture, food preparation and preservation, and the production of therapeutic agents of biologic origin, such as serums, hormones and enzymes.

Since biochemistry is the general study of the composition of living tissue and the chemical changes taking place therein in normal and in abnormal processes, it necessarily involves the following steps: (1) the separation and identification of tissue constituents, followed by a thorough investigation of the chemical and physiologic properties of these constituents; (2) the determination of the amounts of these various substances in various tissues under various conditions of activity; (3) an understanding of the origin, functions and fate of these cell constituents in the numerous activities of living tissues, such as digestion, absorption and assimilation for the repair of old or the growth of new tissue or for the conversion into

The Chemistry of Living Matter

heat or into mechanical or electrical energy, and (4) a study of the nature and excretion of the waste products resulting from these various activities.

All living cells are considered to consist of water, carbohydrates, lipins, proteins, enzymes, hormones, vitamins, extractives and inorganic salts. More than 95 per cent of the entire living world is made up of water, carbohydrates, lipins and proteins, and the other 5 per cent is composed of inorganic salts, extractives, enzymes and hormones. The results of numerous investigations show that there are many kinds of carbohydrates, lipins and proteins in protoplasm and that the kind and amount of each are more or less specific for each cell and for each organism. This is especially true for the proteins. The proteins are so definitely specific that the recognized specific characteristics of a given cell, organ or organism are usually attributed to the proteins therein; in other words, the specific structure and machinery are made up mainly of the proteins, while the carbohydrates and lipins serve more generally for energy purposes and for the intermediate chemical reactions essential to life processes.

Chemical Nature and Composition of Proteins

The chemical nature of proteins is such that they, more than any one class of the other constituents of protoplasm, offer the most possibilities for innumerable compounds, all of which are proteins, having many properties in common and yet being sufficiently different in some respects to account, at least in part, for certain chemical tissue and cell specificities.

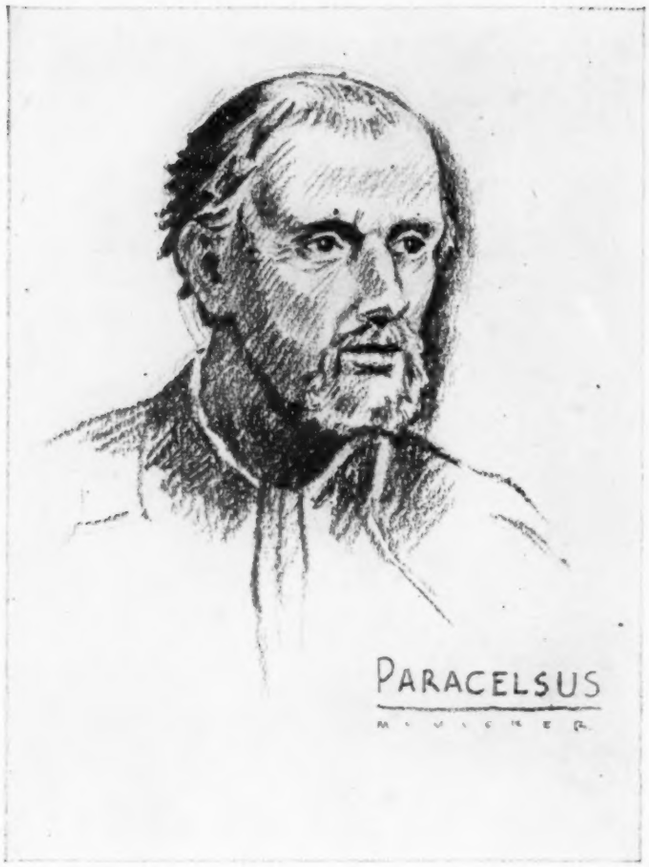
The proteins are composed of the elements nitrogen, carbon, hydrogen, oxygen, sulphur and frequently some other elements such as iron, phosphorus, copper and iodine. The proteins contain these elements in numerous units, called amino-acids, combined in such a way that 1 molecule of water is usually lost for every 2 amino-acids combined with each other. The number of different amino-acids found thus far in proteins is twenty; there probably are more.

When various proteins are analyzed for their content of these amino-acids, some are found to contain all of the amino-acids and some only part of them. Most of the proteins contain most of the amino-acids but in different amounts. It is perfectly obvious, then, that this at once leads to many proteins of different composition and structure and hence of somewhat different properties. However, suppose one were to calculate the total number of different proteins obtainable if one were to construct all the possible proteins, each protein to contain each of the twenty amino-acids only once in the molecule but for each new protein in a different order as to arrangement and sequence. The total number is calculated to be at least 2,432,902,008,176,640,000. This already incomprehensible figure is increased to a still more overwhelming size if one varies, as one must, the proportions of the number of amino-acid molecules to each other. There is no other class of cell constituents which offers such variability.

Defense Mechanisms

In confirmation of these statements, there are immunologic reactions, a type of defense mechanism of living organisms against certain foreign substances when these enter the blood stream. By means of these reactions, one can determine accurately in a minute speck of flesh, tissue or blood, from what species of animal or plant the material originated. The entire problem of immunology is linked with the chemistry of proteins and the biochemical considerations of the processes taking place in the immunized organism.

As stated previously the proteins are made up of numerous molecules of various amino-acids. Although animals are able to synthesize some of these amino-acids, nevertheless the animal



kingdom depends largely on plants to prepare these amino-acids and supply them in the form of proteins. Biochemical studies have shown that certain of the amino-acids have remarkable and specific functions. Three of them, histidine, lysine and cystine, are necessary for growth, and another, tryptophan, is required for life. Normally, man and animals usually obtain ample amounts of these amino-acids in the various proteins found in their diets. However, if the protein intake is too low or too limited in type, it is conceivable that disturbances in nutrition may result.

Proteins Are Not Economical Energy Sources

The proteins taken in foods are, however, not all resynthesized into new tissue proteins. The proteins absorbed from the digestive tract that are in excess of the amounts needed for repair and growth are not stored as protein to an appreciable extent but are at once either utilized for energy purposes or converted into and stored as carbohydrates and fats. In the chemical reactions leading to the energy changes of these syntheses, the nitrogen contained in the protein is wasted and excreted as urea, uric acid, and so forth. This means that some of the carbon and hydrogen of the protein is not utilized for energy purposes. Obviously, proteins are not economical sources for energy, whereas carbohydrates and lipins are.

The carbohydrates are compounds containing carbon, hydrogen and oxygen in such proportions that one can think of them as hydrates of carbon. As celluloses they form the skeleton and supporting framework in plants. As starch and glycogen, they serve as easily available stores of energy in plants and animals after passing through the intermediate stages, maltose and dextrose. As the dextrose is utilized by the living tissues, it is in part oxidized into carbon dioxide and water and in part into lactic acid and other reacting substances of great importance in the intermediate reactions involved in various synthetic processes, such as the formation of fats and proteins from carbohydrates. When carbohydrates are absorbed in excess in the mammal, they are either stored as glycogen or converted into fats and lipins in general.

Lipins Have High Potential Energy Content

Under the term lipins are included many fat-like substances; the most important of these are fats, oils, waxes, steroles and phospholipins. The fats and oils, which contain carbon, hydrogen and oxygen, may be considered as organic salts of organic acids with the alcohol, glycerin; such compounds are called esthers. The fats and oils are widely distributed in living tissues. In plants and animals they are formed in part from carbohydrates, and in animals they are probably also formed in part from proteins. These substances constitute the food of the highest energy content, containing 2.2 times as many potential calories per unit weight as carbohydrates or proteins when oxidized in the body. The fats also are economical in the volume they occupy in protoplasm; they do not possess the power of holding water as do carbohydrates and proteins. The final fate of the fats in normal animal activities is that they are oxidized to carbon dioxide and water. In disturbed carbohydrate metabolism, as for example in diabetes, and in abnormal fat metabolism, this oxidation is not quite so complete; as a result part of the partially oxidized acids appear in the urine.

The waxes are similar to the fats and oils in their chemical nature, the main difference being that they contain more complex alcohols in place of the glycerin. They appear to be waste or excretory products which probably originate from carbohydrates but which cannot be considered of value as foods. Beeswax and spermaceti are the best known waxes.

The steroles are complex alcohols which are widely distributed in the animal and plant kingdoms. Nervous tissue is particularly rich in these substances. The steroles probably function in part in a physical manner in the ultramicroscopic structure of tissues; they are not used for energy purposes but probably are in part converted into certain acids found in the bile; they also appear to be related to vitamin D and are possibly related also to some of the sex hormones.

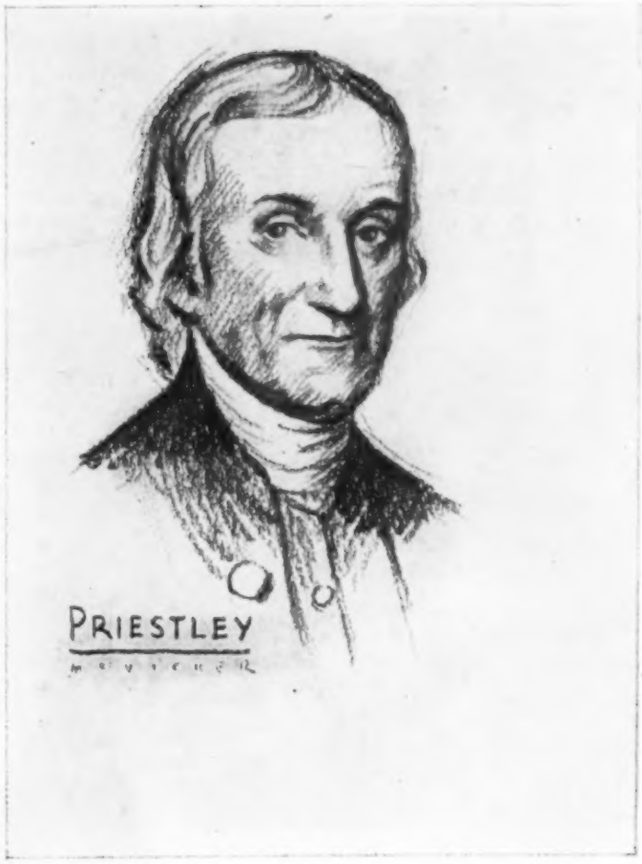
The phospholipins are closely related to the fats in that one or more of the fatty acids combined with the glycerin may be replaced by a phosphoric acid compound of a nitrogen-containing organic base. The phospholipins are also widely distributed and probably function both physically and chemically. Physically they may function in keeping protoplasm in an emulsion state; it is probable that they aid in the solution and transfer of fats and possibly also as intermediate compound formers of certain cell constituents. It is conceivable that they may act in part as carriers of reserve base in keeping certain tissues in a neutral condition.

One of the characterics of living processes is that numerous simple and complex reactions are progressing rapidly, in an orderly fashion in the living tissue; however, for similar chemical processes in his laboratory, not only does the chemist usually require chemical procedures, time and temperatures which are entirely incompatible with the living processes but he cannot make the reactions proceed so rapidly and in so orderly a fashion.

The Work of the Enzymes

The main reasons for these differences in the rapidity and regularity of certain chemical processes are the ultramicroscopic heterogeneous structure of protoplasm, the organization into compartments of selective chemical actions, affinities and solubilities, and finally the presence of certain substances called enzymes. The enzymes are substances which in small amounts act most remarkably under the conditions of temperature, acidity or alkalinity prevailing in living tissues in hastening specifically certain chemical changes. They are the true catalysts of the chemical reactions necessary for the normal life processes. Thus, in digestion, the enzymes of the digestive tract act on the complex carbohydrates, proteins and fats in the food and convert them into more easily diffusible and absorbable and less toxic substances so that the organism can rebuild its own specific tissue constituents from these simpler units. In the rebuilding of its own specific tissue constituents, similar catalysts are probably at work. In the fermentative and putrefactive changes produced by micro-organisms, the enzymes in the organisms bring about the chemical changes leading to the specific end-products. In the conversion of carbohydrates, fats or proteins into energy and waste products, numerous specific enzymes are involved. The enzymes have not been obtained in sufficiently pure form to enable scientists to say anything really definite about their chemical nature. The biochemist identifies them by what they do as catalysts.

The hormones, internal secretions or chemical messengers, are substances elaborated and secreted by specific organs into the blood stream presumably to act on some distant organ, organs,



nerve center or some constituent of the blood or tissues as a result of which there is better coordination between various parts of the organism. These substances are elaborated by the pancreas, thyroids, parathyroids, suprarenals, ovaries, testicles and pituitary. The isolation and chemical characteristics of these substances present one of the main problems of the biochemist. Their physiologic actions are just as remarkable as those of the enzymes, but science has made greater progress in purifying these substances. Epinephrine, thyroxine and insulin have been obtained in pure form, and epinephrine and thyroxine have been prepared synthetically.

Classification of Vitamins

Negatively defined, a vitamin is a substance which, when absent in the diet of an animal, causes a certain pathologic condition which is easily remedied by the addition of a small amount of the missing vitamin to the same diet. The various diseases that one can produce and cure as a result of such dietary procedures are called deficiency diseases. The vitamins now recognized are heat-labile, water-soluble B (B_1), which prevents beriberi; heat-stable, water-soluble G (B_2), which stimulates growth and appears to prevent pellagra; water-soluble C, which prevents scurvy; fat-soluble A, which stimulates growth and prevents xerophthalmia; fat-soluble D, which prevents rickets, and fat-soluble E, which prevents sterility in animals.

Eye Hygiene—Eye Education

By
Sol Rosenblatt

Sandy-Century Photos

The education of the eye may be compared with a musical education; in both instances, "practice makes perfect."

EXCEPTING comparatively infrequent deviations, the average child is born with a perfectly formed eye, complete with all necessary structures to enable it to see, and with a perfect brain to receive impressions. And yet to enable the child really to see, it requires countless daily experiences over a considerable period of time; even then the child may reach for the moon. The education of the eye may be compared with a musical education. A person who has never practiced playing piano cannot play even though he has the fingers and the muscles as well as the brain capable of musical education; while the more he practices, the more expert and proficient he becomes. The same is true of the eye.

This leads to a consideration of what is sight. Seeing may be defined as having knowledge, or perceiving, through the medium of the sense of sight. It involves not merely the reception of light impulses by the eye but the transmission and apperception of those impulses by the brain. The organ of sight consists not only of the structures of the eyeball proper but also of the nerve fibers that connect it with the brain and of the brain cells themselves, with their intercommunications with all departments of the brain. Thus, in effect, the development of sight is in its last analysis gaged by the skill and mental development of each individual. This may be illustrated by a few examples:

To one person a passing auto may be a dark closed car, while a fleeting glimpse enables another, educated in such things, to describe it as a four door blue sedan of a certain manufacture and certain year's model and other distinguishing features.

In the testing of applicants for the secret service, a subject walks through the room, and the applicants are asked to write down points of description. It is found that these vary from half a dozen to twenty items, depending on the development of the applicants.

So, standing on a railroad platform while the train swishes by, one person may notice an air hose swaying about; and to him it is just an air hose. Another, skilled in such matters, notices, however, that the air hose has a certain device on the end, which marks it as of a certain type of construction, using a known amount of air pressure; this observer might be able to talk half a day on the information received in that fleeting glance.

So also one may go out into the wide open spaces and see stones and running brooks; and they are just that to some, while to others there are sermons in those stones and running brooks. The pages of geology are so open that he who runs may read, but the uneducated eye sees only a stone.

Therefore, while the general mental development is an integral part of the eye development,

I wish to consider eye education in its narrower sense of educating the end-organ eye itself in a rudimentary way. For, regardless of the general development of the brain, unless the end-organ receives light impressions there is inadequate stimulation of the brain cells.

When Use "Changes the Stamp of Nature"

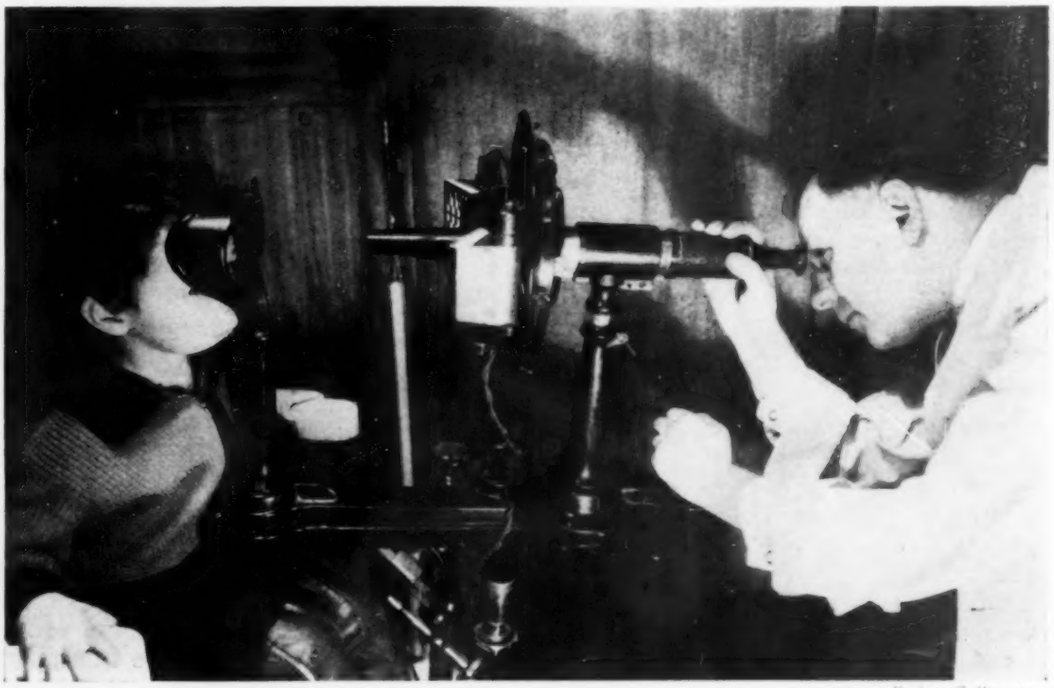
The hereditary influences of Nature have provided organs ready made in all their essential details. These organs do not appear in the first place unless there is an insistent demand for them over eons of time, during which they are developed and perfected; consequently Nature indulgently tends to preserve such organs even though they may be neglected in one generation. However, an important law of the animal system is that nourishment of a part is supplied by a free flow of blood to a part that is actively used; and conversely, when a part is not used, the life-giving fluid is diverted thence to other parts that really need it. As a consequence, the frequent use of an arm causes excessive development of the muscles; and conversely, if one were to tie his arm up in a sling for a few years, the muscles would atrophy from nonuse. The same hyperdevelopment with use and the same retrogression from nonuse would be observed in an eye.

This condition is spoken of medically as amblyopia ex anopsia, and it is one of the not uncommon conditions of the eye. In the course of eye examinations, adults are frequently seen who have one good eye and one eye that would be considered blind for industrial purposes. Yet a careful examination of the blind eye fails to reveal any malformation of its structures. Such eyes generally have considerable error of refraction that could and should have been corrected early in life by the use of glasses. The obvious conclusion is that such eyes became blind from nonuse, owing to the fact that the refractive irregularities of the eye did not allow the light to fall sharply on the retina as it should have done, and the blurred dim picture on the retina was soon ignored in favor of the sharper image on the other eye. The nonuse brought on atrophy and blindness. After adult age has been reached, the possibility is only slight of redeveloping the eye through exercises by having light fall sharply through glasses exactly where it should on the retina, whereas, the same procedure early in life might have stimulated the normal development of the eye, which includes its pathways to the brain and the brain cells themselves that learn to recognize the light impulses.

Putting the Poor Eye to Work

When this condition of one good eye and one poor eye is caught early enough, the poor eye is educated by forcing it to work, while the patient is wearing glasses, to the exclusion of the good eye. Some doctors use medicine to prevent the good eye from focusing, temporarily, for a few weeks at a time. Others require the patient for a few hours each day to cover the good eye so as to force the poor eye to practice, as otherwise the undereducated eye would automatically permit the good eye to do all the work, as the easiest way to see. This form of treatment must not be confused with eye exercises offered by advertising quacks as a substitute for glasses.

Crossed eyes, or squint, is another condition that is closely related to the foregoing discussion. It is frequently found in children who are farsighted, and its mechanism is not hard



Early examination of the eyes, while the child is still in the developmental stage, is advisable.

Ewing Galloway

to understand. When the normal eye looks into the distance, it is in a comparative state of rest. When the same eye focuses on the near point, as in reading, it undergoes what is technically known as accommodation. There is a little lens back of the pupil, about the size of the head of a lead pencil, surrounded by a muscle called the ciliary muscle. In a camera one changes the focus to the near point by adjusting the distance between the lens and the film, but in the eye the lens is soft and mobile, and the act of accommodation consists in squeezing by the ciliary muscle; this results in the lens becoming more curved or convex, thus increasing its refractive index, so as to bring the near point into distinct focus. The lens is thus made thicker and may be said to increase from the power of about 10 diopters to that of about 14 diopters. However, something more is necessary. The words or letters that are held at reading distance are really between the two eyes, which must be focused on the same object. The sympathetic nervous system, reflexly stimulated by the nerve to the ciliary muscle, activates the nerves controlling the internal recti muscles and causes the eyes to converge so as to focus them on the same reading matter. In short, when the lenses focus on the near point, the eyes automatically converge. This is distinguished from the practically parallel position of the eyes in looking into the distance.

Causes and Correction of Farsightedness

The farsighted child has an eyeball that is too short, considering the amount of convexity of his lens, and he sees in the distance only by the use of his ciliary muscle, making the lens bulge more, just as the normal eye would do in reading. Nature does not distinguish between the two, and the automatic use of the ciliary muscle reflexly stimulates the muscles of convergence, just as in reading, so that the eyes become crossed while they are being used for distance.

The obvious way of correcting this condition is to have the individual use glasses which enable the eyes to see in the distance while in a state of rest, thus avoiding the necessity of using the ciliary muscle for distant vision. Then the eyes will cross or converge only when looking at the near point, and that is quite normal and proper. In such cases, parents sometimes ask for an operation; that, however, is only to be thought of as a last resort. A muscle operation would straighten the eyes for a time; but unless glasses are worn, the reflex stimulation from the ciliary muscle, the mechanism of which has been previously described, would inevitably cause the eyes again to cross. In many cases, the use of correct glasses completely straightens the eyes.

In cases in which the error is about the same in the two eyes, the crossing may alternate from one eye to the other. If the fusion sense is not developed and the two eyes have approximately the same visual acuity, an operation to make the two eyes look parallel is decidedly contraindicated, as the individual would then see double, much to his distress.

But when one eye has a greater error than the other, it requires more work to focus, and it is liable finally to turn in, while the other eye, which does not require so much effort, does all the work. The eye that turns in, in such a case, if not assisted by proper glasses, in time becomes the blind eye, and for cosmetic purposes may be straightened by a muscle operation; in some cases it may become straight by itself when the ciliary muscle has given up the struggle for vision and ceases to function.

Functions of the Fusion Sense

The two eyes each see a separate image, and the development of intercommunicating nerves and brain cells brings about the faculty of coordinating or fusing the two images into a single picture. The fusion faculty automatically adjusts for slight muscular imbalances, so that the two eyes are always directed toward the same visual point. This is an important brain development. Most ophthalmologists are agreed that it must be developed in the early years of life, or it will never be developed; some fix 6 years as the limit, others 8 or 10 years.

There is another important function in the fusion sense besides that of furnishing the increased acuity of definition of the picture by the use of two eyes; that function is the obtaining of a sense of depth and distance. This may be compared with the difference between a flat single photograph and the double stereoscopic picture, which emphasizes the idea of depth and distance. In surveying large areas of land, the surveyor trains his transit on a distant hill or other point. Thereupon it is a simple matter for the surveyor to figure out the dimensions of the triangle formed by the base line and the distant point; he knows both the length of the base line and the angle which the distant point forms with the base line at each end. From these data he easily figures the distance to the point in question. The eyes, with the full development of the fusion sense, subconsciously do the same thing. The base line is the distance between the two eyes; and the slight angle of convergence, with the acquisition of experience and education, automatically registers the distance of the object, gaged by the varying degree of convergence. On the same principle, range finders have been used by the army, and distance measures by camera manufacturers.

It will thus be seen that the eyes must be educated, if at all, during the tender years of childhood while the child is still in the developmental stage, and that if glasses are required, the earlier they are worn, the better, even at as early an age as 18 months. Otherwise the individual is apt to be handicapped forever.

Progress in Preventive Medicine

By P. M. Ashburn

PART V

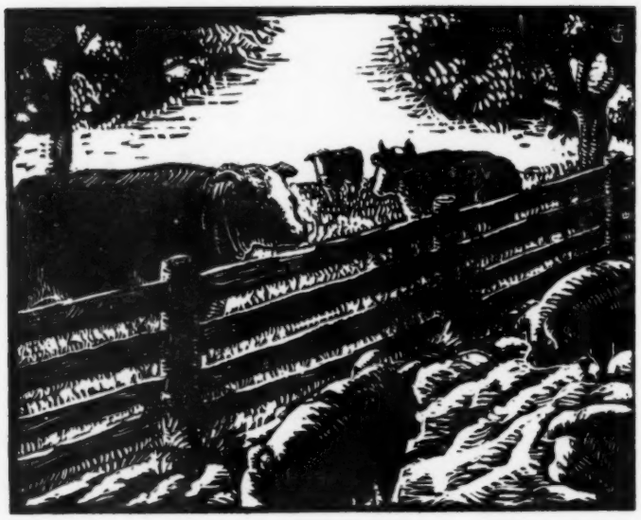
WHILE THE COMMON bacterial and protozoal infections of the intestinal tract are conveyed and prevented in the same ways as typhoid, there are certain parasites or worms which infest the area and may at times cause serious symptoms or death, and which gain entrance to the body in other ways. The intestinal worms, formerly far more common in this country than now, are of three groups: the roundworms, or Nematodes; the tapeworms, or Cestodes, and the flukes, or Trematodes. Of these, the roundworms are far more common than the others, and they are represented by several genera, the principal of which are the lumbricoids, the common white or pinkish worms resembling large earthworms or fishing worms in shape and size; the hookworms, small worms from about one-third to one-half inch long and about the diameter of small cotton wrapping twine; the seatworms, or pinworms, about the same size or smaller, and whitish; and the whipworms, so called because the body is thicker at one end than at the other and resembles a whip with a thick handle and a thin curled lash. The usual length of the whipworm is about 2 inches. Of these forms, the lumbricoid worm is most often recognized by the patient or the mother, because it is often passed in the stool, is easily seen and readily recognized. It is the most common worm infesting human beings, and it occurs especially in children. The hookworm is most harmful, because it is both widespread and productive of serious symptoms; the pinworm is most annoying, and the whipworm is least so.

Until well into the nineteenth century, intestinal worms were so common as to be regarded as almost a normal part of human life, much as they are regarded as a normal part of dog life by many persons today. It was commonly believed that they originated spontaneously in the body, from "corruption of the aliment" or other obscure cause. Of course the belief in spontaneous generation has not flourished in recent years; since the use of the microscope has become common in medical practice, the eggs of all these worms are well known and easily recognized.

In more recent times the entire life history of most of these worms has been worked out, and there is positive knowledge on which to base education in preventive measures. No longer need one attribute the presence of worms to eating candy or something else particularly pleasing to the childish palate. Worms always come from the eggs or the larval worms gaining access to the body.

Hookworms are of two kinds: Ankylostoma is popularly called the European hookworm

Necator Americanus, a form of hookworm, was brought from Africa to America by slaves.



Proper cooking kills tapeworms in pork and beef.

because it is the only kind commonly found in Europe; Uncinaria or Necator, the variety common in America, is called the American or, better still, the African hookworm, because it is found in all Africa south of Egypt. It was brought from Africa to America by slaves, among whom it caused "dirt eating," which was regarded as being in itself both a wicked habit and a costly disease, as it caused the loss of the slave or his labor.

Dirt Eating Is Symptom of Worm Infestation

Actually, dirt eating is merely a symptom of severe hookworm infestation, as is the "tropical anemia" so common in Porto Rico and elsewhere. It is easier to explain just why the worms cause severe anemia than why they should cause such perversion of appetite as to lead to dirt eating. They sometimes occur in great numbers in the intestine, to the wall of which they attach themselves by means of the hooks or teeth which give them the name. There they remain, living on the blood of the host, probably elaborating a poison which destroys more of the blood, and forming and passing enormous numbers of eggs into the intestine of the host. These pass out with the waste from the bowels, and if they land on the surface of the ground, as is the case in many rural communities in the South and the tropics, the larval worms hatching from them undergo a phase of development in the soil and are ready to enter another host.

If the excreta fall into a water-flushed toilet or into a deep privy, the hookworms do not get a chance to enter other persons and they die. The larvae that hatch in the soil live there, and when a barefoot person comes along, they get on the feet and penetrate the skin, setting up an irritation which is known as "ground itch." After passing the skin, these larvae work their way into the veins, pass to the right side of the heart and thence are carried with the blood to the lungs. From the lungs they pass up the windpipe to the throat, down the esophagus to the stomach and thence to the intestine, where the cycle begins again. Obviously, most of the precautions against typhoid would not be effective against the hookworm. The obvious remedies are (1) proper disposal of fecal matter to prevent contamination of the soil with the eggs and larvae, (2) the wearing of shoes to prevent contamination of the skin of the feet from the infected soil and (3) treatment of infested persons to rid them of worms and so destroy their power to contaminate the soil. Throughout all our southern states, in Latin America, India, China, the Philippines and Java, in much of the tropical and subtropical world, great effort and large sums are being expended to educate people to these simple measures; through such education and such measures the fight will eventually be won, and the hookworm will be eliminated.

Progress is slow. Ancient habits are not easily changed, and to the tropical laborer the price of a privy and of shoes for his family may represent a sum beyond his hopes of attainment. Also there lingers in him and his white employers the belief that his weakness, languor or slowness are due to "weakness of constitution," if not to sheer laziness. But as the lesson goes home and is heeded, the lazy man becomes alert and ambitious, the sick man well, and the weak man strong. The effort to educate as to hookworm is one of the major public health movements in the world today. Its simplicity and the certainty of results should insure its speedy triumph. Economic reasons and the difficulty of changing folk-ways insure delay; however, the testimony is unanimous as to definite progress and physical improvement in all our South, in Mexico, the Philippines, India and many parts of the world.

Contamination Is Easily Spread

The seatworm, or pinworm, is an exceedingly annoying parasite, hard to get rid of, but its life history is simpler than that of the hookworm. It is prone to crawl out of the anus, particularly at night, and to cause intense itching and an irresistible desire to scratch that part of the body. As the male worms die in the small intestine after performing their function of fertilization, and the females then pass to the large intestine to reside and to discharge their eggs, it is only these females, distended with eggs, which pass out of the anus and cause the itching. This is more apt to occur at night, and the scratching is liable to be done in sleep or in a semisleeping state. The fingers thus become contaminated with eggs which may later be carried to the mouth and swallowed, thus causing increase of infection.

As the worms and eggs may be rubbed from the body onto the bedding or clothing, they may

get on the persons of others sleeping in the same bed or handing the soiled clothing. Several persons in a family may thus be infected by one child. It is important that any mother having a child who habitually scratches the anal region should examine the child promptly to see whether any of the small white worms can be detected in the vicinity of the anus; if so, she should have the child treated and should at once educate her family to the dangers of contamination and the means of avoidance. Occasionally the worms crawl from the anus to the vagina of little girls or under the prepuce of boys, causing an itching which results in handling and later perhaps in masturbation.

The means of avoidance of contamination are simple, but they demand great care in bathing, in handling clothing and bedding, in keeping finger nails short and in using the nail brush and soap thoroughly after handling the person or the clothing, and before eating.

Eelworms Are of Worldwide Distribution

The lumbricoids, eelworms or large white worms, are of worldwide distribution, are common and are easily recognized; this is the type usually referred to when one says that a child has "worms." These worms do not have to undergo a stage of development in another host or in the soil, as does the hookworm; it is therefore possible for a child to infect himself with eggs passed in his own stools, as it is in the case of the pinworm. Lumbricoids may then be found in great numbers, and as they are usually from 6 inches to 1 foot in length and as thick as large earthworms, they may occasionally collect in masses which cause intestinal obstruction. Residing in the upper portion of the intestine, they may be vomited; and being active and migratory, they may wander through the stomach and up the esophagus to the throat or nose, may enter the bile ducts and cause jaundice or inflammation, or may get into and obstruct or perforate the appendix, causing appendicitis. Commonly they are merely present in the intestine, and their presence is only known when they are vomited or passed in the stools. Cleanliness and water-carriage disposal of stools are protective and have resulted in a much lessened frequency of worms. In general terms, personal cleanliness and the measures that will prevent typhoid will prevent "worms." This, one may safely teach. If these measures are applied, one need not fear the roundworm. If a child becomes infested, the treatment is simpler and more promptly effective, as a rule, than that for either hookworms or pinworms.

Another nematode, which is exceedingly dangerous but fortunately rather uncommon, is the trichina, or Trichinella spiralis, a parasite of the pig and many other animals, including man, who receives it from the pig. As previously stated, this parasite is not common; but it is present in all parts of the United States, and small outbreaks of trichinosis are reported from time to time. The parasite usually runs its life history in two hosts. For our purposes those two hosts are the pig and man, and the history is as follows: The parasite is a small worm, the male usually about one-sixteenth inch long and the female one-seventh inch. It gains entrance to the hog's stomach with the infested meat of other animals, the embryos being set free when the meat is digested. In the upper portion of the intestine the males lead a short life and die. After impregnation the females bore into the mucous membrane of the intestine and there produce their large families, usually more than a thousand members to each. The young gain access to the lymph spaces and go from there to the blood, by means of which they are distributed throughout the body. In about ten days, some of these worms lodge in striated muscle (the lean meat of the hog), where they become encysted; they remain alive for weeks, months or years, a period usually shortened in the hog by the death of the animal for human consumption. If, then, the pork is eaten raw or is so insufficiently cooked as not to kill the encysted larvae, they hatch out in the human stomach; and the cycle starts again as previously described in the pig.

Trichinosis Is Unpleasant but Seldom Fatal

But a man can complain of his woes, and he makes much more of them than does the pig. During the first few days after eating the infected pork—the period of the verminous love making which ends in the exhaustion and early death of the young males—the consumer may have gastro-intestinal disturbances, such as vomiting and diarrhea, which are apt to be attributed to "ptomaine poisoning" or to irritating food of some kind. This purging and

Uncooked fresh-water fish, mollusks, crabs and other shell-fish may harbor worms.

vomiting may serve to remove some of the worms and so to lessen or prevent later symptoms. Purging from drugs given to rid the system of the irritant may act similarly. Otherwise, after another period of from ten to twenty days the patient may feel aching pain in his muscles, which may also be tender on pressure, and have fever, headache and other symptoms suggestive of typhoid, meningitis or other acute infection. The blood and the spinal fluid, if examined at this time, may serve to establish the diagnosis, the blood showing a high percentage of a certain type of white blood cell not found in bacterial infections, while the spinal fluid may show the living, moving larvae. In rare cases the disturbance may be so great as to cause death. Usually the larvae become encysted in the muscles, as did their ancestors in those of the pig; and after a sickness more or less prolonged the patient recovers and, unless it be his postmortem misfortune to be eaten by man or beast, the infection dies with him. If a rat or a hog, instead of a man, eats the infected pork, the consuming animal may in turn be eaten by another and so start the cycle again.

Preventive Measures Are Simple and Safe

Moses began the education for the prevention of this disease many centuries ago, when he wrote, "And the swine, though he divide the hoof and be cloven footed, yet he cheweth not the cud; he is unclean to you." Preventive measures, in the order of their increasing importance, are as follows: 1. Examination of the carcass of the hog is essential. This is always done in the large abattoirs. In order to be reliable and effective in preventing trichinosis, however, it may require such prolonged and thorough microscopic examination of tissues as not to be practicable commercially. Many years ago, Germany placed an embargo on American pork because it was not microscopically examined, but an investigation of cases of trichinosis in Germany for some years thereafter showed that 40 per cent of them followed the use of pork which had been so examined, and it was thus shown that the method was unreliable. 2. Cold storage of meat for ten days will kill most of the trichinae but not certainly all. It cannot be relied on to the neglect of heat. 3. Thorough cooking will kill the worms, and this must be the final and real protection. This measure can be applied in the home. Pork should never be eaten unless it is thoroughly cooked; it should never be eaten raw, rare or merely pickled or smoked. Every outbreak of trichinosis follows neglect of this simple precaution.

To summarize, the education as to trichinosis is simple, sure and safe, and it embraces but two measures: follow Moses and abstain from pork, or never eat pork that has not been thoroughly cooked.

There is another group of parasitic nematodes which infest man, gaining access to his tissues through the suctorial apparatus of certain blood-sucking insects. The most common and best known of these is Filaria bancrofti, which is transmitted by two or more common species of mosquitoes, in which it undergoes a phase of development. It has already been stated that Patrick Manson discovered this transmission in 1879. The young filariae grow to maturity and then lodge in and obstruct deep-seated lymphatic vessels, thus giving rise to elephantiasis of the legs, breast or genitals, according to the location of the blocked vessels, and producing such swellings and deformities as are sometimes monstrous and almost unbelievable. Or if the large chyle ducts are obstructed, they may burst and cause chyluria, which is sometimes known as milky urine, chylous ascites, or milky abdominal dropsy. From their location in the lymphatic glands, the impregnated females discharge myriads of larvae which circulate in the blood, to be imbibed with it by other mosquitoes and to start the cycle anew. Together with malaria, yellow fever, plague and trypanosomiasis, filariasis is a reason for avoiding insect bites. This disease, while common in many tropical countries, is rare in the United States, although not unknown in the South.

There are other nematodes which man acquires through the bites of insects. If children are educated to the knowledge that all insect bites or stings may be harmful, much good will be done and much suffering will be avoided.

Of the ten varieties of tapeworms which have been known to infest man, only five kinds are at all frequent. Three of them are acquired by the use of uncooked or insufficiently cooked flesh food, and the precautions mentioned for the prevention of trichinosis will suffice to prevent them.

Beef Tapeworms May Attain a Great Length

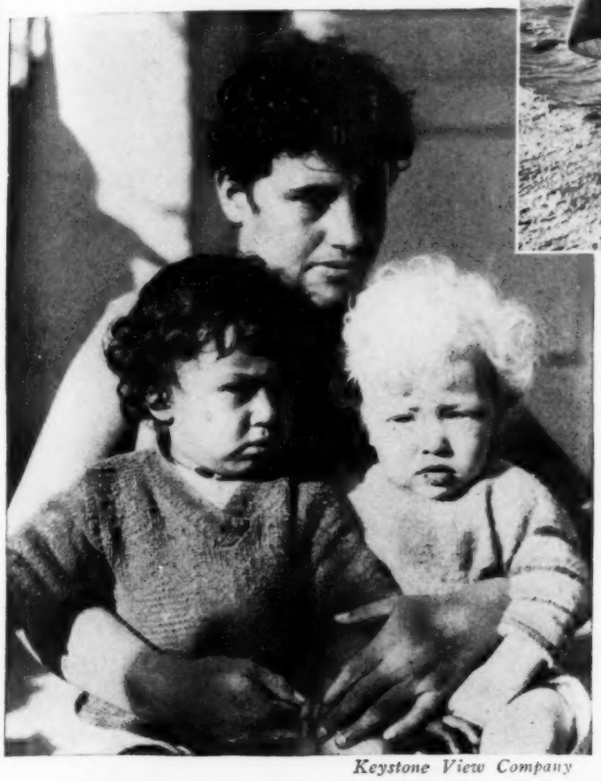
The beef tapeworm passes its larval encysted stage in the muscles or the liver of a beef animal, the small cysts about one-fourth by one-third inch making the beef "measly." If such meat is eaten raw or insufficiently cooked, the cyst is digested and the larva is set free to attach itself to the intestinal wall and to produce the numerous white, flat segments that remain united to make up the total length of 10 to 25 feet which the worm may attain. From time to time the older and more mature of these segments may break free and be discharged in the stools. The eggs may be ingested by grazing cattle, and the cycle begins again. The encysted stage does not occur in man.

The pork tapeworm is much less common in America than is the beef tapeworm, but it is much more dangerous because the encysted as well as the intestinal *(Continued on page 670)*

SAILING! SAILING!

What beauties are these 18 foot racing yachts in the harbor of Sidney, Australia! These great birds of passage literally fly on the wings of the wind.

Century Photos

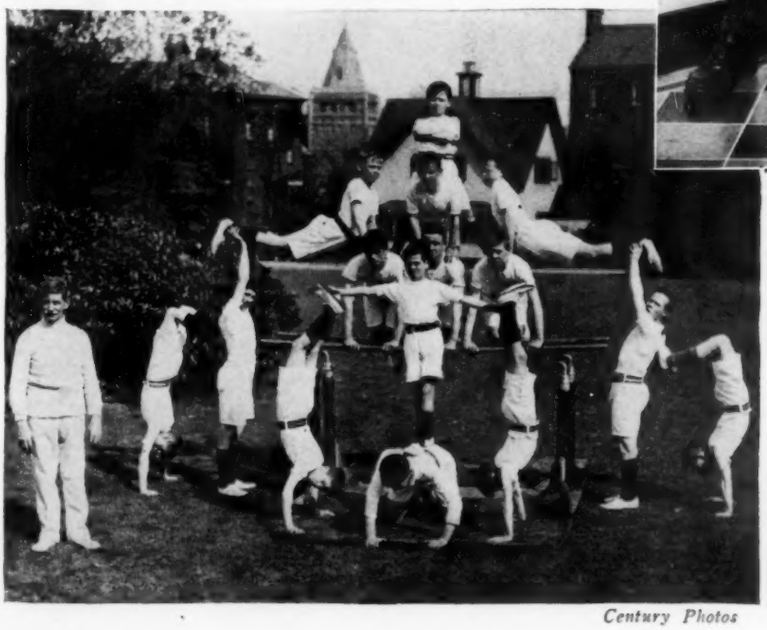


Keystone View Company

One twin son of Mrs. Felicita Rios of Catalina Island, Calif., has dark hair, eyes and skin. The other has all the characteristics of the albino. Mother Nature plays strange pranks, indeed!

Acme

Edward Harding, seated on the arm of the wheel chair, is one of the few boys in America who has won every merit badge in scout work. Peter Fortuna is a senior patrol leader of a troop of crippled children at a San Francisco hospital for crippled children.



Century Photos

Tumbling formation by boys of the Deaf and Dumb and Blind Institution, Belfast, Ireland.

Children of Athens, Greece, are seen enjoying the water sport provided at one of the city playgrounds.

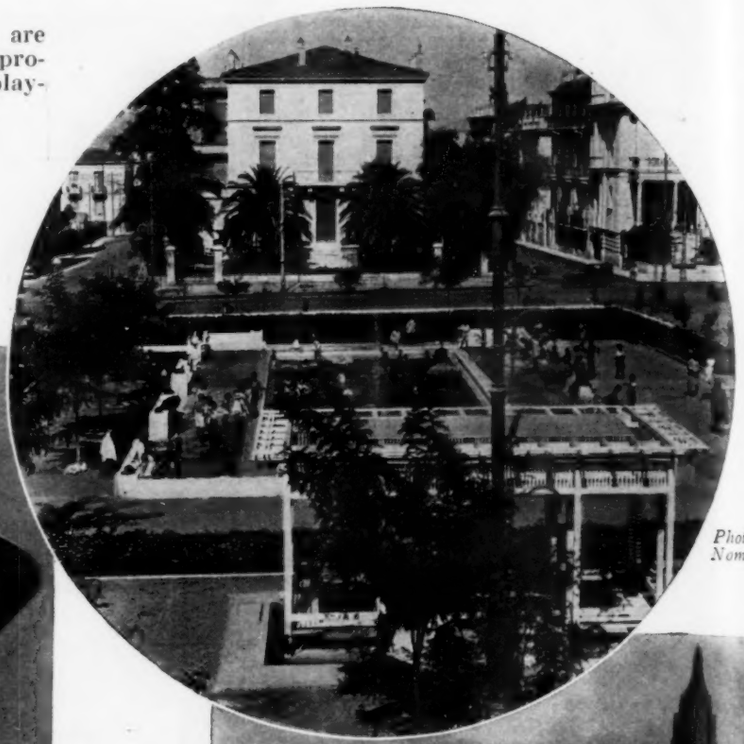
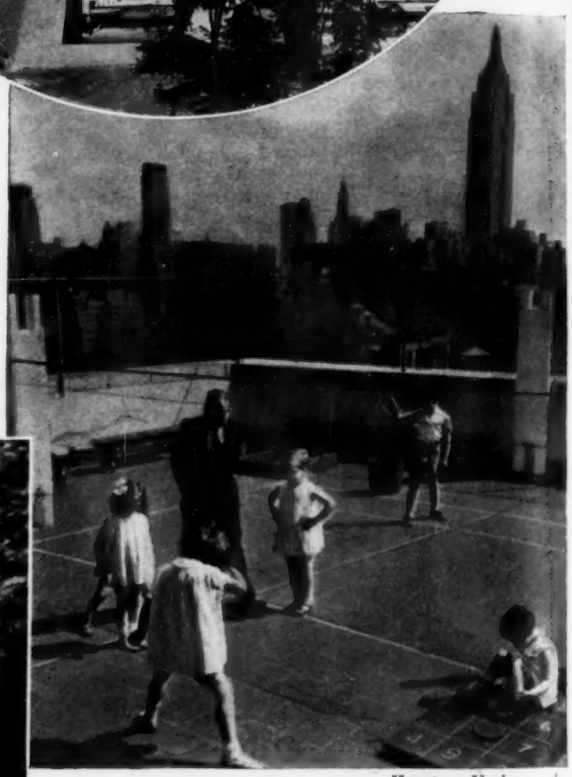


Photo Nomlas

Health and charm distinguish Lenna Thomas, one of four American Girl Scouts to win the Juliette Low Memorial Award which includes a trip to an international encampment in Switzerland this summer.

Acme



Keystone-Underwood

Roof playgrounds such as this in New York City are rapidly decreasing the possibilities of street accidents among children.

Camp Ho Mita Koda, a summer camp for children with diabetes, is located near Cleveland. On July 31, 1932, the campers unveiled a monument erected in honor of Dr. Frederick G. Banting, discoverer of insulin.

Shoes Have Tongues

By Mae Kelly

SHOES have tongues—and the tales they tell to those who can hear would make the most intrepid gossipers pale. The owners of the shoes, the conservative and secretive ones, would be horrified and scandalized if they only knew the secrets the leathery tongues reveal.

The little short girl rocking along on the highest of heels, all out of proportion to her height, unknowingly declares to the world her chagrin over the lack of a few inches, while her tall sister on the low heels is sneakingly hopeful that on the next meeting with her short lover he will seem to possess more nearly the stature of a perfect Prince Charming.

And how the old and the new tongues wag over the ages of their subjects, for as an old shoemaker once said, "It is extremely amusing to witness the care some old gentlemen take to get their shoes made easy, while the Beau Brummel of the day orders his boots to be smart and threatens his bootmaker that if he can get into them, he 'won't have 'em.'"

This fairly well covers the trend of the whole situation, even at the present time, in regard to feet and their covering. Whatever vanity an individual possesses, his feet disclose. Style shrewdly recognizes this universal characteristic of human nature and has become so well established that it is about the only factor that has been and still is considered in choosing a new shoe. Not until the feet are ugly, warted and distorted monsters and every step is a matter for consideration does the buyer of shoes consider what might please his feet rather than his vanity.

It is the common belief of most persons that only women need to be enlightened; but according to tellers of historical tales and according to government bulletins, one of which states that out of 58,706 men examined, 41,852 were found to be wearing short shoes, it seems that it would not be a waste of time for the men also to listen.

What is Style? Why is she so powerful? Is she after all such a mysterious creator? One might hope that shoemakers would protest against the extremes of fashion, since numerous biographic sketches show that shoemakers have frequently distinguished themselves by their talents and have occupied eminent stations among their fellow men. It must be that they possess a political rather than an educational bent. But the "do-you-remember-tongues" of historical shoes are clamoring to disclose the reasons for some of fashion's caprices.

The jail warden of the shoe race is the short shoe.

During the twelfth century, shoes were so disgraceful that the clergy preached and ranted against the ungodly things. The points of shoes became so long that people could not kneel in church to say their prayers. The points had to be chained to the knee so that the wearer could walk. All this occurred because a certain Norman aristocrat tried to conceal his deformed feet. The fashion swept the country. Edward IV ended it by passing a law that any shoemaker who made for unprivileged persons any shoes or boots, the toes of which exceeded 2 inches in length, should forfeit 20 shillings.

At one other time the law had to prohibit the size of the shoe. This was in the reign of Henry VIII of England. Bluff King Hal had gouty feet. Shoes had to be devised to cover the swelling that so mortified him. To flatter their ruler, his followers, one after the other, adopted the custom until all appeared knock kneed and splay footed.

The little girl on high heels bemoans her lack of a few inches, while her tall sister sneaks about on low heels, trying to look petite.

A masculine writer of the period disgustedly observes that it hardly seems believable that men could be such willing victims of grotesque footwear, and he describes the clicking red heels and huge flashing buckles which the dandies of Queen Anne's court affected.

At the present time, shoes have to keep their squeaks to themselves or disgrace their owners. Not so, when the fops of Alexandria were having their day. Shoes had to be noisy then.

Charles I and his admirers wore boots which were large and wide at the top, so wide that the wearer had to stride much in walking. Even the Puritans wore such boots, though they were never decorated with costly lace. The Puritans also took care to have their toes sharp at the point, as a distinction between themselves and the dandies who generally wore the toes broad.

Husbands and shoes have at times tried to influence the lives of wives. This happened in Venice when women wore shoes of such great height that a woman, like Gaul, was divided into three parts: one part was wood, meaning her shoes, or chopines; another part was apparel, and the third part was woman. The mode was introduced to prevent wives from gadding about; but, as sly commentators remarked, "the scheme didn't work very well."

Some say that binding the feet of the Chinese women was a handicap placed on women's gadding tendencies. Other reasons are recorded, so it is a question as to just how this particular fashion started.

The shoes of the rustic have always proclaimed his station by the loose and slovenly manner in which they were fitted. Probably this is the reason that shoes are still worn too snug rather than too loose.

Men's shoes now seem to conform to a fairly desirable standard, and this is due undoubtedly to the fact that man's entire costume has become standardized. Why does not woman free herself from the tyranny of Madam Fashion? Here again the tongues of historical shoes boast.

From time immemorial the shoe, like all true gossips, has never missed a romantic clue or failed to forge a romantic link. Ages ago in the folk-lore of England and continuing to the present, missiles have been hurled after the bride; and the missiles have been her old shoes. Who is not familiar with that best known of all fairy tales, "Cinderella and The Glass Slipper?" The Greeks, instead of tramping on their enemies as some races did, put pictures of their sweethearts or wives on the sole of their shoes so that whenever they walked they might leave a witness of their devotion.

Early in history the shoe became a social arbiter, an aristocrat endowed with refinement and luxury. In the apocryphal book of Judith, Holofernes tells how he was attracted by the general richness of her dress and personal ornaments; but it was her sandals that ravished his eyes. The bride in Solomon's song is met with the praise, "How beautiful are thy feet with sandals, O prince's daughter!"

Omar Khayyam paid a charming compliment to Heart's Desire when he wrote:

"To kiss, dearest Saki, thy shoes' pretty tips,
Is better than kissing another girl's lips."

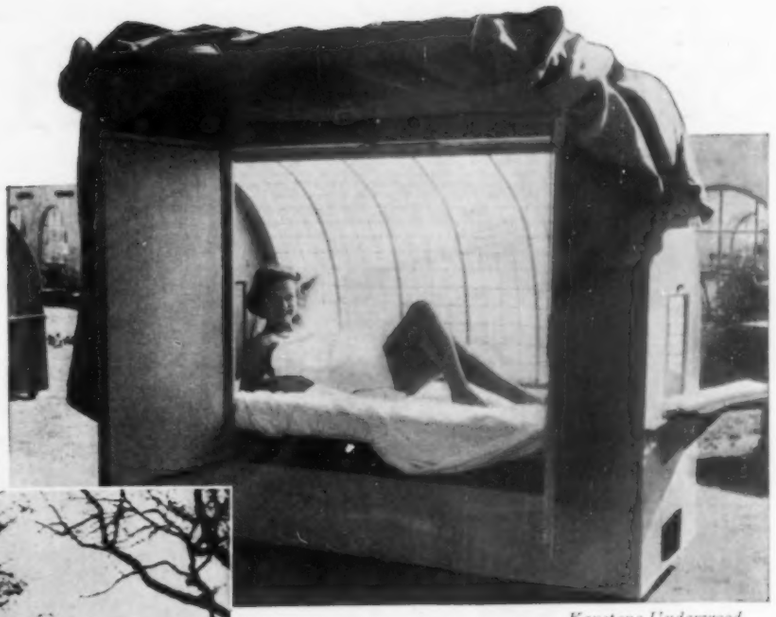
In the light of all this, is it to be wondered at that when a woman is in a shoe shop and a thin, slim, aristocratic shoe is put before her, wisdom flies out of the window? She buys it, even though it has a tall, slender heel that will shoot sharp pains across joints pushed out of place and a pointed toe that will cramp the front of her foot; meantime she secretly prays for a miracle to make it comfortable.

Any common-sense shoe is aware that the most objectionable feature of women's shoes is the high heel. The continued use of this shortens the heel cord and the backleg muscles, causing lordosis or sway back with its accompanying backache.

Shoes in the "M.D." class know that high heels can make an arch so high that it becomes a physical deformity, not an indication of aristocracy. The natural foot arch is low. High heels cause the crippling pains across the ball of the foot. Pain caused by this pressure may be so great as to cause the person to faint. The shoes with high ideals for the good of the race will say that the heel should be fairly low and that the shoe should conform to the shape which Nature has given to the normal foot. It should have a flexible shank so that the muscles of the arches may become strong through use. The toes and forepart of the *(Continued on page 647)*

SUN CABINET

A new sunbath in which privacy is assured and full benefit of the ultraviolet rays is provided is being used at Palm Springs, Calif. The cabinet is portable and is made of translucent shells.



Keystone-Underwood

Acme

Moving day in the Congo! After seeking the aid of friends, a native can move his portable home whenever the scenery becomes tiresome.

A Globe Photo

INTERSECTION LIGHT

A device which throws a beam of light across the pavement to warn motorists that pedestrians are about to cross was tested recently in Paris. It is believed that at poorly lighted intersections it will prove successful.

Herbert Photos

FINE FOOD

This Indian cook in the kitchen of a mansion in Guatemala prepares a feast at every meal. The stove she uses is made of cement and iron.

SPEAKING OF HAIR—

There is small consolation in the thought that "grass does not grow on busy thoroughfares."

By

William A. L. Styles

DISCIPLES of Izaak Walton will appreciate how rapidly a friendship may develop between two "fish fans." It seemed as though I had known him intimately since childhood. True, I had been an interested reader of his magazine articles for several years and had on several occasions exchanged correspondence with him when seeking to enlarge on my knowledge of popular health practices; still I had never met the famous skin specialist until the day the hotel clerk introduced us following his registration as a guest at the inn. He had a double motive in coming to Moose Head Inn, for he wished to correct the page proofs of his new book on dermatology as well as to indulge in a few days' trout fishing at this Mecca of discriminating anglers.

In no time we had become inseparable companions during the doctor's leisure hours, and it was only natural that I should give way to a decided urge to seek further information on my pet subject.

Finally the opportunity presented itself when after a particularly satisfying dinner we found ourselves enjoying a smoke on the spacious veranda of the hotel.

"To settle a vexed question, Doctor," I prefaced my barrage of questions, "how often should the hair be shampooed?"

"I should say that a semimonthly shampoo would be a good rule for the average person to follow," replied the genial specialist. "I have found that repeated shampooing in the case of women's long hair predisposes to devitalization. Soap plays an important rôle in the shampoo, and the less alkali a soap contains, the less injurious it becomes to human hair."

My next question was one of general interest which should clear away much of the popular misconception prevailing nowadays: "What is your candid opinion of hair tonics, Doctor?"

Quick as a flash of lightning, he answered, "Scientifically speaking, hair tonics do not exist. In fact, the existence of these medicaments is a distinct tribute to one of the most popular superstitions connected with the practice of medicine."

Continuing his reply, the doctor shed some important light on the status of the so-called hair tonics and demonstrated from numberless analyses of these remedies purchased in the open market that none of their vaunted advertising claims were either warranted or possible. I learned that the average product consisted in an alcoholic solution of cantharidis or resorcin whose efficacy could be attributed mainly to scalp massage. Furthermore, I learned that external treatment of the hair is largely a palliative measure, as the health of the hair depends so intimately on one's general health.

My next question was one which strikes deeply at certain contemporary practices and which is bound to meet with opposition from those engaged in the procedure: "Are there any scientific grounds for the common practice of singeing the hair?"

"That is undoubtedly the biggest farce perpetrated on a gullible public by an ignorant cosmetic operator. It is high time that people

should acquaint themselves with the elementary physiologic facts of the structure of hair; then they will know that there is no 'sap' or its counterpart in human hair," stated the doctor in emphatic terms.

"In what way can curling the hair be considered injurious?" was the next question propounded to my medical friend.

"Excessive heat applied directly to the shaft of hair is apt to be followed by a loss of luster and brilliance. A word of warning must be given in connection with the electric curling-iron, which should be used cautiously and sparingly if the quality of the hair is to be preserved."

Entertaining so many conflicting ideas on the permanent wave, I felt the moment opportune to acquire authentic information on this ultra-modern procedure. Accordingly, my next interrogation was, "Will you give me some information about the permanent wave, Doctor, and how it should be applied?"

"Twenty-five years ago a process for curling straight hair was invented that would resist the invariable attacks made on artificial curliness by weather conditions. This procedure has been honored with the dignified name of a permanent wave. As humidity is a well recognized curling agent, so dampness tends to increase curliness, the reason being that certain types of hair absorb moisture which, after entering the structure of hair, vaporizes under the influence of body heat and extends the hair shaft in width while contracting it in length."

Continuing his explanation, he stated that the application of a permanent wave consisted in boiling the hair in an alkaline solution while the hair was wound on a curling rod. Since individual hair varies in porosity, there is no solution known which can be used equally for all hair. The heating of hair, as performed in a permanent wave, does not have any demonstrable harmful effect if it is properly conducted.

For purposes of permanent waving, human hair was divided in 1926 into ten classes based on its natural porosity, with each division having a definite alkaline solution suitable to its group members. More recently an alteration was made in the arrangement of these general groups when, instead of a porosity test, elasticity of the hair became the recognized basis. As a result of this scientific plan, practically 97 per cent of human hair can be tested in advance; thus it has become possible to overcome many of the annoying consequences formerly connected with the permanent wave.

A strand of hair is immersed for ten seconds in a 2 per cent boiling alkaline solution and then subjected to a weight of 4 pounds for thirty seconds on a special testing machine. As the expansion of a sample of the hair depends on penetration of the alkaline solution into the shaft of the hair, the elasticity of hair is shown to depend on the degree of absorption of the solution. The failure of a permanent wave in the majority of cases is attributable to the inexperience of the average operator. Many beauty parlors do not have any means of classifying a patron's hair in advance of a treatment, so a hit-or-miss result is all that can be expected under the circumstances.

Having in mind the popularity of hair dyeing, I decided to elicit some information on this interesting development. With that end in view, I asked, "Would you consider hair dyeing an injurious practice, Doctor?"

"On the whole I am inclined to answer 'yes' to your question as I have seen so many cases of unexpected complications. As you may know, there are two classes of hair dyes in common use: vegetable and mineral. Vegetable dyes, such as sage, henna and walnut, are decidedly less injurious than the mineral dyes now so generally employed in the form of silver, lead and mercury. These mineral dyes are harmful to the scalp and to the hair alike.

"Even bleaching the hair has its drawbacks unless the mildest agents, such as lemon juice, are used. The use of hydrogen peroxide often leads to a dry and lusterless hair with split ends. As the number of dye applications given to American women in beauty parlors runs into the millions every year, the subject becomes one of widespread interest and importance. Generally speaking, dyes can only darken the hair, while bleaches serve to make the hair lighter in color. Coal-tar derivatives have within recent years found their way into hair dyeing establishments; they are applied in liquid form and allowed to dry on the hair, where they become

Scientifically speaking, hair tonics do not exist.

fast. These dyes share with the chemically prepared hennas certain dangers which occasionally affect individuals."

As the possessor of a healthy head of hair is widely envied, the care of hair has long been a vital consideration. Too many realize the value of an abundant crop of hair only when it has vanished and when little, if anything, can be done to remedy the situation. Those possessed of a normal growth of hair should understand that in its proper care lies the secret against baldness. While it has become generally recognized that scalp brushing is a recommended form of hair massage, it should be more clearly realized that airing the scalp is a valuable hygienic measure, particularly when it is supplemented by exposure to sunlight.

Much controversy has prevailed in the past as to the rôle played by tight hats in the promotion of baldness. It would now appear in the light of further investigation that less attention should be paid to the supposedly injurious effects of constricting head-gear, especially if the hat is light in weight and is adequately ventilated.

Because of popular misconception, baldness has run the gauntlet of every conceivable theory that man could invent to explain its origin. The germ, heredity and dandruff theories have contributed extensively to fatten the bank rolls of charlatans. It is now known that hair is fastened by the muscular grip which the scalp exerts; when this grip is lightened, hair falls when it is combed or brushed.

The heating of hair, as performed in a permanent wave, does not have any demonstrable harmful effect if it is properly conducted.

Some authorities contend that the modern practice of cutting the hair at frequent intervals is responsible for the noticeable increase in cases of partial or complete baldness. Their contention is that the muscle-gripping powers of the scalp are greatly diminished when a lessened length and a decreased weight of hair are to be supported.

Women have not been subject to baldness up to the present, but if the fad of hair bobbing is continued, perhaps they may in time share the bald pate honors with men. The female hair of past generations exerted a favorable effect on the muscle grip of the scalp as the hair-holding muscles become stronger when they are faced with the task of supporting the weight of long hair.

Normal human hair grows at the rate of ½ inch monthly until it has reached the length of 14 inches, when the growth slows up appreciably, only to cease on reaching an approximate length of 30 inches. Prehistoric man produced as much as 110 ounces of hair yearly, whereas an average of 4½ ounces is grown by his modern descendant. On attaining the age of 50 years the average person has thrown off practically 10 feet of scalp hair weighing about 50 ounces. Yet at present one seldom sees hair longer than 3 or 4 feet, and such a length can be borne only by a scalp whose muscularity is well developed.

It is idle to refute the fact that the treatment of confirmed baldness is disconcerting to physician and to patient alike. If falling hair has resulted from some transient illness, the hair will usually grow again when health has been fully restored. While no amount of treatment can be expected to restore the hair of elderly persons lost through natural decay, the commencing baldness of young persons may sometimes be checked and the growth of hair promoted by proper treatment directed to the general nutrition and the scalp condition.

The victim of premature baldness suffers a mortal blow to his pride and is placed in the position of seeking consolation in such commonplace observations as that "grass does not grow on busy thoroughfares." This may give him the doubtful satisfaction of possessing great mental vigor; or since baldness thus far has been a masculine prerogative, the victim may console himself with all manner of thoughts on his sex superiority.

The term premature baldness is misleading in that it conveys the idea that the possession of hair is purely a question of age. Baldness has nothing to do with senility, though a lessened hair production appears with advancing years.

In no field of health endeavor can it be stated with greater truth that prevention is easier than cure than in the avoidance of baldness. As long as man signifies by having recourse to frequent cuttings that he does not desire a luxurious

growth of hair on his scalp, he cannot blame Nature for refusing to measure up to her opportunities. The individual who would avoid baldness should refrain from applying cold water to his head after invigorating exercise such as a particularly strenuous game of golf or tennis.

Many of the popular beliefs about human hair are intended as commercial propaganda. The fact remains, however, that untold numbers are daily losing their hair; and the quack, who has some magic concoction to sell to an eager following, has little cause to feel the pinch of an economic depression. The human hair, though the subject of widespread individual concern for centuries, has been the recipient of minimal scientific attention. While the average physician is apt to dismiss hair hygiene as an unimportant detail of his practice, the patient on the road to baldness has a far different conception of the subject and is right in wanting to know why he is losing his hair and what legitimate medicine has to offer him. If in the past the medical profession has failed signally to respond to this appeal, it should not be too ready to condemn fellow citizens if they have had recourse to unorthodox measures of treatment in their impatience to follow any trail which promised results.

The people of Great Britain were recently startled out of their complacency with the statement made within the hallowed shades of the House of Commons that British citizens were annually expending more money on so-called hair tonics than the government was spending on its colossal fleet. How much greater must be the ramifications of trade in the United States where there are approximately 50,000 beauty parlors alone doing an annual business of $400,000,000, apart from an even greater expenditure in hair tonics and restoratives?

Shoes Have Tongues

(*Continued from page 642*)

foot should always have ample room, while the instep and the heel should fit snugly.

The jail warden of the shoe race is the short shoe. Hammer toes covered with corns, twisted and ingrown toe nails and bunions pester feet imprisoned in short shoes.

Some shoes have to be burdened with arch supports. Are they happy? No! Listen to their tale of woe. Arch supports should be regarded merely as temporary measures to be used during restorative and strengthening treatment. They act as a crutch to hold up the bones of the foot, and if they are worn for a prolonged period, they cause the muscles supporting the arch to become weaker and weaker, since the support is doing their work. Arch supports should be considered suitable only in emergencies, in restorative treatment and in extreme old age.

Proper use of the feet in sitting, standing and walking should be studied, practiced, and permanently acquired. Of course, this takes a little time, quite a little patience and perhaps a little trouble. But in self defense the poor, tortured, overweighted, arch-supported shoes have been heard to murmur, "City people spend money to learn horseback riding correctly, but no one will spend even a thought on the matter of correct walking."

The beauty expert for the shoe family assures us that feet do not need to take on the proportions of middle age. The secret is to keep the weight on the outer borders of the feet. If the inner edges are made to support weight, the arch flattens, causing the foot to lengthen and to widen. Bones crushed out of their normal position require much more room. The toes should march straight ahead; for variety they may turn in but never out. Unfortunately, in ages past, some person with the social prestige of Emily Price Post but without her fund of accurate knowledge told the world that turning the toes out is a mark of breeding. That detrimental idea still prevails with some persons.

An insistent voice, probably that of the Physical Educator shoes, rises above the babel of tongues. It is contending that the road to healthy feet is a footpath. Walking, if one really stops to think about it, is the natural exercise for feet. Even those persons whose work requires much standing should walk to bring about a stimulation of circulation since standing is depressing to the circulation. Walking in reasonably well fitted shoes does tend to make the feet ever so much less sensitive to shoes of any type, even the murderous pointed ones.

Undoubtedly the remark "Vanity is the starter of all our endeavors to be beautiful" came from a wise old shoe tongue; and it is true. However, it is to be hoped that the time may come when buyers of shoes will dispense with just enough vanity to change the shrieking, squeaking, squawking tongues of nerve-racked shoes, imposed on by villainous pinches and squeezes, into the gentle, low pitched, well modulated tongues of shoes living in comfort.

Guardian of the Family Health

The housewife who plans carefully will find that this 4-foot cabinet is large enough to accommodate the day's marketing for a family of five. A larger one will, of course, allow better planning of "left-overs" and will necessitate marketing only twice a week. In this refrigerator, ice cubes and frozen foods may be stored in the frost chest; foods which are to be well chilled are kept on the top shelf, and tall bottles, dishes or jars are placed on the bottom, the shelf above being cut out to allow extra space.

Part II

By DORIS W. McCRAY

THERE ARE stern guardians and lenient guardians, wise guardians and foolish guardians, guardians of wealth and guardians of health. The refrigerator, guardian of the family health, which I described in the June HYGEIA, helps not only to protect the family health but also to conserve the family funds; in addition, it has a special appeal for the housewife in that it affords the means of concocting many delightful and unusual dishes which she could not otherwise prepare. These culinary combinations may be prepared long before they are to be served, thus avoiding the necessity of that last-minute rush.

An endless variety of nutritious possibilities present themselves: frozen cocktails; jellied soup, fish or salad, and frozen desserts. The following recipes may be prepared so that they delight the eye and tempt the appetite.

The mixtures chosen have sufficient body so that they will not need to be stirred during freezing. Air is imprisoned in tiny air spaces (in beaten cream or egg), and gelatin is usually employed to make the cream firm. The mixtures are light and fluffy, and the heavier fruits are folded in carefully to maintain this lightness. It is not necessary to use rich whipping cream, because coffee cream or a portion of cream from the top of the milk bottle, carefully dipped out, a day old and thoroughly chilled, will whip. It may be set into a bowl of cracked ice during beating.

Apricot Ring

Apricot ring is a tasty mixture, filled with healthful fruits. It is most attractive when it is chilled, then turned out on a platter and decorated with fresh sliced oranges. The small oranges are peeled, like apples, to remove all the inner white portion, then cut with a sharp knife into pretty golden slices.

Wash 2 cupfuls of dried apricots, cover with water and boil for forty minutes. Add ¾ cupful of sugar, boil for five minutes longer and then beat thoroughly. Add 2 tablespoonfuls of granulated gelatin which has been softened in ¼ cupful of cold water and stir until the gelatin is dissolved. Cool the mixture and add 1 tablespoonful of grated or finely cut fresh orange peel and ½ cupful of orange juice. Pour half of the mixture into the mold; place cooked pitted prunes around, and cover with the other half of the apricot purée. This dessert should be thoroughly chilled.

The prunes are prepared in advance by being boiled for forty minutes without soaking. They are pitted, and 1 cupful is measured for this dessert.

Frozen Apricot Cake

This dessert may be made the day before guests are expected, and it has the added advantage of using up cake which may be on

hand. The cake is crumbled and toasted in the oven until it is a delicate brown; then 3 cupfuls are measured.

Cook 2 cupfuls of dried apricots in 4 cupfuls of water until soft; then beat into a smooth sauce. Soften 2 teaspoonfuls of gelatin in ¼ cupful of cold water and beat into the hot sauce until it is dissolved. When cold, combine this mixture with 1 teaspoonful of vanilla, 2 eggs beaten until they are thick and creamy and 1 cup of cream beaten until it is stiff. Mix the ingredients well and pour them into a loaf-cake pan, lined with paper, which will slip into the freezing compartment when the trays are removed. Leave overnight; if the mixture is too hard the next day, it may be moved to the shelf just below the freezing compartment for a short time before being served. Unmold on a platter and garnish with tenderly cooked shiny apricots. These are prepared by adding ½ cupful of sugar to 2 cupfuls of apricots and by cooking carefully until they have absorbed all the syrup and are glossy. Soft custard is poured over the top of the apricot cake.

Pear Ice Box Cake

Wash 2 cupfuls of dried pears and remove the cores. Cut them into slices, add 3 cupfuls of water, and boil for thirty minutes. Dried peaches may be used instead. Add ½ cupful of pineapple cut into pieces, ½ cupful of sugar and ⅛ teaspoonful of salt, and allow the mixture to simmer for ten minutes. Combine the mixture with 1½ teaspoonfuls of gelatin which has been softened in 2 tablespoonfuls of cold water, and stir until the gelatin is dissolved. When the mixture is cold, add 1 cupful of cream which has been beaten stiff. Line a spring cake pan with slices of sponge cake. Add half of the pear mixture, cover with a thin layer of cake, add the remaining pears, and cover with more cake. Chill overnight or until it is firm. Unmold it and serve.

Banana Sponge Pudding

Beat 2 eggs, add ½ cupful of cold milk and ⅓ cupful of sugar mixed with 2 tablespoonfuls of flour. Stir the mixture constantly while slowly adding 1½ cupfuls of hot milk, and cook slowly until the custard coats the spoon. Remove the custard from the fire and add 2½ cupfuls of lady finger or sponge cake crumbs, ½ teaspoonful of vanilla, ½ teaspoonful of lemon extract and ¼ teaspoonful of almond extract. Allow the mixture to cool and add 1 cupful of cooked sliced prunes. Fold in ½ cupful of cream which has been whipped stiff. Chill, unmold and decorate the pudding with overlapping slices of bananas around the base of the mold and across the top. The bananas are sliced into orange juice, then lifted out and placed on the dessert. This procedure will prevent the bananas from darkening or drying out before the sponge pudding is served.

Concord Raisin Ice Cream

Boil together ¾ cupful of Concord grape juice and 1 cupful of seedless raisins for five minutes. Remove the mixture from the fire and cool it. Beat 1 cupful of heavy cream until it is thick but not stiff, and add 10

Fluffy, light, smooth, free from crystals, and full of flavor —a dessert that looks almost as good as it tastes! It is amazing that just good, wholesome food can be such a delight to the eye. The regulator on this refrigerator may be turned to the coldest position for freezing and may be turned back to a less cold position to keep the dessert firm yet not allow it to become too hard.

marshmallows cut into small pieces. Beat 2 egg whites until they are stiff, add the yolks and beat well. Add 1 teaspoonful of vanilla, folding it into the cream until the mixture is well blended. Then fold in the raisins, keeping the mixture light and airy. Pour the dessert into a refrigerator pan and freeze it.

Spiced Prune Ice Cream

This is something quite out of the ordinary in flavor. Heat 1 tall can of evaporated milk and dissolve into it 1 teaspoonful of granulated gelatin which has been softened in 1 tablespoonful of cold water. Add ¼ teaspoonful of cinnamon, ⅛ teaspoonful of nutmeg, ⅛ teaspoonful of cloves and a few grains of salt. Mix the ingredients well and chill them.

Remove the pits from 2 cupfuls of cooked prunes; cut the prunes into small pieces. Be sure that they have been cooked long enough to make them palatable, yet do not have them soft or mushy. They should possess an interesting texture and chewiness. They are best if ½ cupful of sugar is added and they are allowed to cook down, all the water being evaporated or absorbed.

Whip the milk until it is stiff. Add 2 tablespoonfuls of brown sugar and 1 teaspoonful of vanilla, beating well. Fold in the prunes. Pour the mixture into the refrigerator tray and freeze it until it is firm.

Fig Ice Cream

Boil 1 cupful of dried figs for ten minutes, drain, and cut them into pieces. Add 1 tablespoonful of granulated tapioca to a tall can of evaporated milk and cook this in the top part of a double boiler from ten to fifteen minutes until the tapioca is clear. Soften 1 teaspoonful of gelatin in a tablespoonful of cold water and add it to the hot milk after the tapioca has been strained out of it by using a coarse sieve. Chill the milk thoroughly and beat until the mixture is stiff. The tapioca that was strained out may be added to the figs or discarded. Beat ¼ cupful of sugar and 1 tablespoonful of vanilla into the milk after it is stiff. Fold in the figs. Freeze the mixture and cut it into squares for serving.

If desired, 1 square of chocolate may be melted and added to the whipped milk for color and flavor. In this case, only 1 teaspoonful of vanilla is used.

Creamy Salad

This salad is most attractive molded in a long flat dish. It should then be cut into cubes just the right size to nestle into curled leaves of lettuce on individual salad plates.

Wash 1 cupful of seedless raisins in hot water, drain, cool, and mix with 2 cupfuls of finely cut celery. Soften 1 tablespoonful of granulated gelatin in ¼ cupful of cold water and melt over hot water in double boiler or on top of the teakettle. Cream ½ cupful of peanut butter with 1 cupful of boiled salad dressing. Add 1 pint of cottage cheese, the dissolved gelatin, raisins and celery. Mix the ingredients thoroughly and pour into a mold for chilling.

Frozen Vegetable Salad

Beat an egg until it is thick; then beat in ½ cupful of mayonnaise and ½ teaspoonful of salt. Add ½ cupful of chopped celery, ¼ cupful of thinly sliced radishes, ¼ cupful of grated fresh young turnip and 1 cupful of cooked prunes which have been sliced from the pits. Mix the ingredients well, pour them into a refrigerator pan and freeze for about two hours.

Cut the salad into squares and serve it on lettuce with a garnish of mayonnaise.

Salad Loaf

This chilled loaf is unmolded and sliced, and each slice is placed on lettuce. If the entire loaf is brought to the dining table for slicing, it may be decorated with slices of pimento, stuffed olives and lettuce.

Simmer 4 eggs until they are firm but not tough. Cool, cut them into pieces, and combine with 2 cupfuls of shredded raw carrots and ¼ teaspoonful of salt.

Add 2 tablespoonfuls of cold water to 1 tablespoonful of granulated gelatin, and after a few minutes, warm this by placing it over hot water until it dissolves. Add 2 cupfuls of cottage cheese which has been mixed with 1 cupful of mayonnaise or thousand island dressing. Combine with other ingredients and mix well but lightly, so that the pieces of egg will not be broken. Pour the mixture into a pan or dish.

Fruited Cheese

Mix 2 packages of Philadelphia cream cheese with 1 cupful of mayonnaise and 1½ tablespoonfuls of gelatin which has been dissolved in 3 tablespoonfuls of cold water and warmed until melted. When smooth and creamy, this mixture is folded into ½ cupful of cream which has been whipped until stiff. Fold in 2 cupfuls of whole, pitted, cooked prunes and 2 cupfuls of drained grapefruit, either canned or fresh. Pour the mixture into small individual molds and chill it until firm. Unmold on a slice of tomato and decorate with a fresh, firm tomato cut into eighths and placed around the cheese.

Keystone View Company

THE OLD TESTAMENT IN BRAILLE

The blind in London have started to produce the revised version of the Old Testament in Braille, a project which will take several years to complete. The three persons in the picture above are shown reading the proof sheets. To the right, a reader is shown dictating from the revised Bible to one of the blind stenotypists.

Keystone View Company

Acme

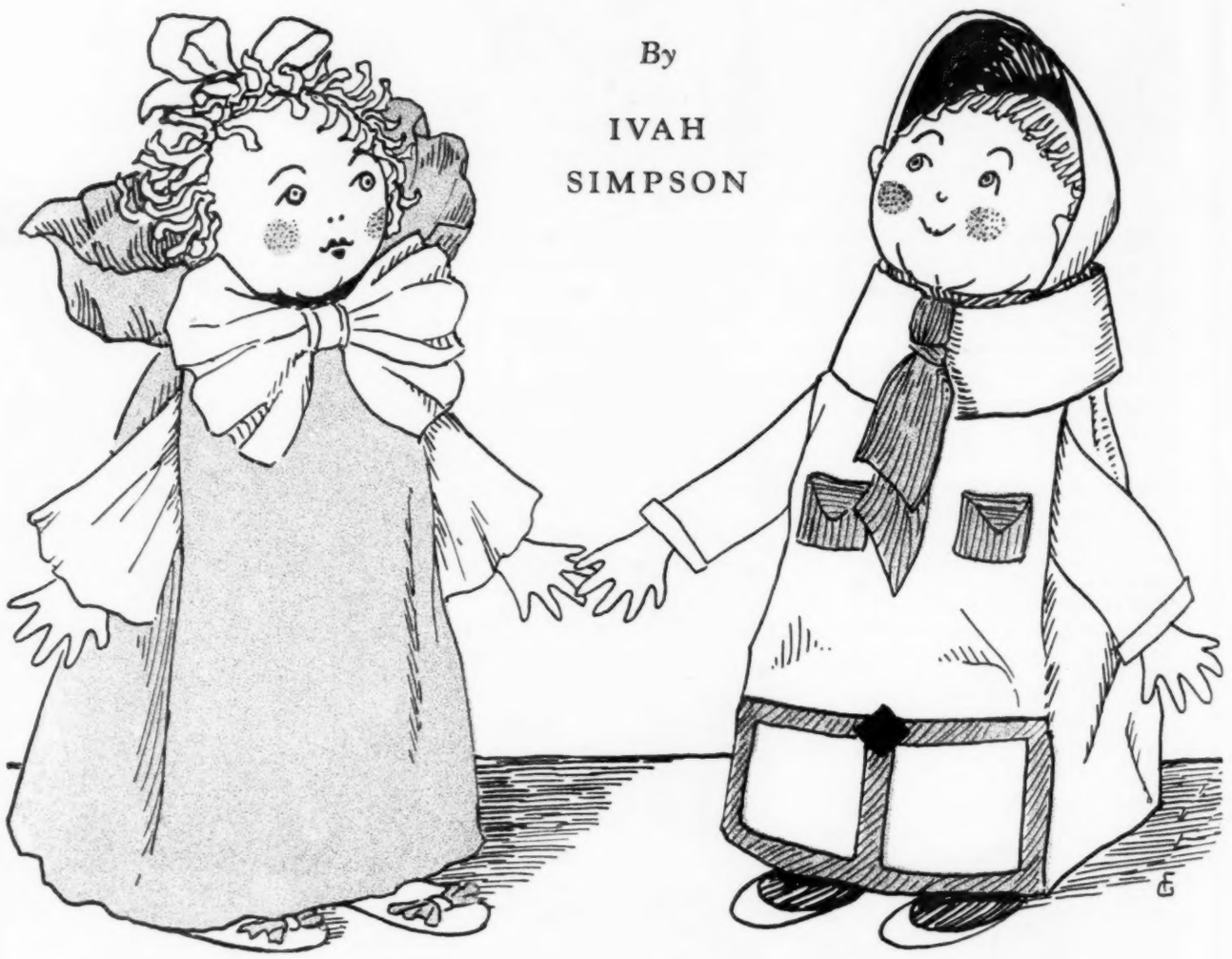
LIKE MOTHER LIKE SON

Patsy, mascot of a San Francisco fireboat crew, has given Firebug, her offspring, something to strive for. Patsy's heroic efforts have saved many persons from drowning. Recently her barking saved a stray launch crew being carried to sea. And Firebug appears to have inherited his mother's intelligence, so pensive does he look.

The Beverage Twins

By

IVAH SIMPSON



CHOCO LATE was sitting on the kitchen table working a jig-saw puzzle. The puzzle was made of crackers, and he had it all finished except five "teeny-weeny" little pieces; but try as he would, he just could not make those five pieces fit in anywhere at all.

"Bah!" he snorted in disgust. Then he raised his arm and was about to sweep the whole thing onto the floor, when suddenly the door swung open, and his sister Koko cried out, "Choco, you'd better get dressed this minute!"

"Get dressed?" he repeated, puckering up his face. "What for?"

"Surely," she replied, her eyes open wide with astonishment, "you haven't forgotten that we're going to Betty's party this afternoon!"

"No," he said gloomily, "of course, I haven't, but I don't want to go."

"You know you want to go," she said sharply, "but you don't want to get dressed."

"Well, what if I don't?" he returned sulkily, and went back to work on the cracker puzzle.

"Choco," she cried, stamping her foot impatiently, "look at that clock!"

"I see it," he began, "but—"

"Do go and get dressed," she whined. "You know I can't go without you, and I don't want to be late to that party."

"Aw, quit crying about it," he demanded in disgust. "We won't be late." Then he jumped down from the table and hurried out.

When Koko saw the door close behind her brother, she climbed on a chair and stepped from the chair over to the kitchen table. She wanted to look in the mirror hanging just above it so that she could admire herself in her new party clothes.

As she twisted and turned herself about, she slipped on a piece of the cracker and nearly fell off the table. She was so angry that she kicked the whole puzzle—every single piece of it— onto the floor.

Some of the pieces broke into tiny bits, but she tossed her head and said, "I don't care if

you did break. Now, I can walk on this table without fear of falling."

Then she patted her yellow curls into place, straightened her pretty green hair-ribbon, smiled at her image in the glass and murmured, "I think you look lovely in your dainty dress of pink crêpe with its large upstanding collar. And that big green bow, The Cat's Whiskers, at your throat is ever so stylish!"

She raised her arms and admired her big green sleeves. She glanced down at her feet and laughed in delight when she saw her pretty green crêpe slippers with their tiny pink bows. And before she realized what she was doing, she was dancing lightly and gracefully on the white table top.

She was having such a delightful time that she did not hear Choco open the kitchen door and come into the room. In fact, it was not until he stepped on some pieces of the cracker and crushed them that she knew he was there.

She stopped her dancing at once and cried out in astonishment, "Choco, you simply can't be ready for the party already!" But without waiting for him to reply, she went on breathlessly, "Oh! Oh! You have new party clothes, too, haven't you?"

"Yes," he stammered in confusion, "yes, I have, but—I—I feel so silly—all dressed up like this."

"Why, Choco!" she exclaimed, looking at him with admiration, "you look perfectly splendid. I'm sure no one at the party will look even half so well."

"Just look," she squealed in surprise, "the yellow tips on your black shoes match your yellow trousers, and the red stripes on your trousers match the pockets on your shirt, and your pockets match your tie."

"Ugh!" he broke out in disgust, "you make me sound like some silly matching game."

She only giggled in reply.

"Say," he asked flushing slightly, "didn't you notice, too, that my black and yellow cap matches my black and yellow shoes?"

But Koko did not answer. She was staring at him with the queerest expression on her funny little face.

"What are you staring at?" he demanded crossly.

"Turn around, Choco," she begged.

He did as she wished, but he glared at her over his shoulder and said "We—ll?"

"Why—why," she choked, "you know, your new party suit looks just like, just exactly like a step-in."

"Well, it is," he snapped at her, "and if you want to know, I like it. It takes me hardly any time at all to get into it. You see, my shirt, trousers, belt and shoes are all fastened to this baglike garment, and I simply step into the bag, put a rubber band around my neck and slip my collar into place."

"Isn't your collar fastened to the bag?" she wanted to know.

"No, no, it isn't," he replied, "but my tie is fastened to my collar, and I can slip them both on at the same time." Then he looked at her triumphantly and asked, "Don't you wish you could get into your clothes as quickly as I can?"

She laughed at him gaily and said, "Why, Choco, my clothes are all in one piece, too. Didn't you know that?"

He blinked his eyes and stammered, "No—no—I didn't."

"They are," she assured him, "and I can step right into them, put a rubber band around my neck to hold them in place, and I'm all dressed."

"Isn't your collar separate like mine?" he asked.

"No, indeed," she answered, "it—"

But just then the kitchen clock called out, "One—two." So Koko stepped from the table to the chair, carefully slipped from the chair down to the floor, and she and Choco hurried away to the party.

It was a lovely party. They played some of the jolliest games, and the afternoon passed quickly, much too quickly, thought Koko, as she sat on the party table right in front of Betty.

"Um—m," she whispered to Betty, "I think the refreshments are the nicest part of your party, don't you?"

But she didn't hear what Betty said, for suddenly Skinny Lawton began to laugh, and as she peeped around to see what he was laughing about, Choco said sternly, "Skinny Lawton, my collar may be big, but it fits my neck, doesn't it?"

"Yes—yes, I suppose it does," he answered rather doubtfully as he reached over and poked Choco in the cheek.

He was more surprised, however, than Choco was, and he cried out, "Oh! Oh! What a queer face you have! In fact, your whole head is queer, isn't it?"

Poor Koko was sad, for Betty had removed her head, and so she could neither hear nor see.

"No, it isn't," burst out Koko, and her cheeks fairly flamed with anger.

"It is too!" declared Skinny emphatically.

"It is not!" she protested.

"Listen, Skinny Lawton," said Choco. "Do you know who I am?"

"No—no—I don't," he unwillingly admitted. "I can't tell who you are with all the party togs you have on," and as he reached over and poked Koko in the ribs, Koko and Choco both laughed aloud at his look of amazement.

"Why, why," he gasped, "you're a bottle all dressed up, aren't you?"

Choco grinned at him and nodded his head.

"Ha-ha-ha-ha!" laughed Skinny, and his sides shook. "Whoever heard of a bottle with a head?"

"Pooh!" said Koko tossing her yellow curls contemptuously. "Bottles have necks, don't they?"

"Yes," he admitted, "of course, they do."

"Well," she declared triumphantly, "necks usually have heads, so—"

"So," finished Choco, "we made some heads for our necks."

"Out of what?" asked Skinny, becoming interested.

"Cotton, crêpe paper, string, glue and the top of a milk bottle," Choco replied.

"But," said Skinny, frowning in bewilderment, "I don't understand about your faces."

"They're painted on the paper with colored crayons," giggled Koko.

"Yes, I see that, now," he answered, "but where did you get your hair?"

"Silly," she giggled, "can't you see that it's made of yellow paper and pasted on our heads?"

But Skinny did not answer her. He was staring at Choco with a look of disgust.

"What's the matter?" asked Choco anxiously.

"Er—er," stammered Skinny, "of course, you look perfectly splendid all dressed up in your party clothes, but Choco, you're a Beverage, you know, a part of the refreshments, and—"

Choco laughed aloud, "You don't know how to drink me, do you?"

"No, I don't," snapped Skinny.

"Take my head off," suggested Choco.

Skinny's eyes nearly popped out of his head at this suggestion, but he carefully lifted Choco's head from his body and put it down on the table.

He looked so queer and confused that Koko burst out laughing, and she laughed till the tears rolled down her rosy little cheeks. But after a few seconds she wiped away the tears and said gently, "Now, Skinny, you're ready to use those straws lying there by your plate."

She was eager, indeed, to hear what he would say about Choco, but just as he picked up the straws and put them into the bottle, Betty reached over and removed Koko's head, and she could neither hear nor see a thing.

"Oh, dear," she sighed in disappointment, "of course, that was just the thing for Betty to do, but I did want to know how Skinny liked my brother."

After a time, however, Betty replaced Koko's head on the bottle, and she heard Betty say, "Weren't the Beverage Twins wonderful, Skinny?"

"They certainly were," he agreed as he put Choco's head back in place. "They were the best part of your party."

Koko looked at Choco, and Choco looked at Koko. Then they both smiled, and any one could tell from those smiles that the Beverage Twins were perfectly satisfied with Betty's party.

How to Make the Beverage Twins

CHOCO and Koko are all dressed up in their best clothes. They are going to Betty's party and they are to sit right on the party table!

The bodies of Choco and Koko are small cream bottles, and their clothes are decorated paper bags.

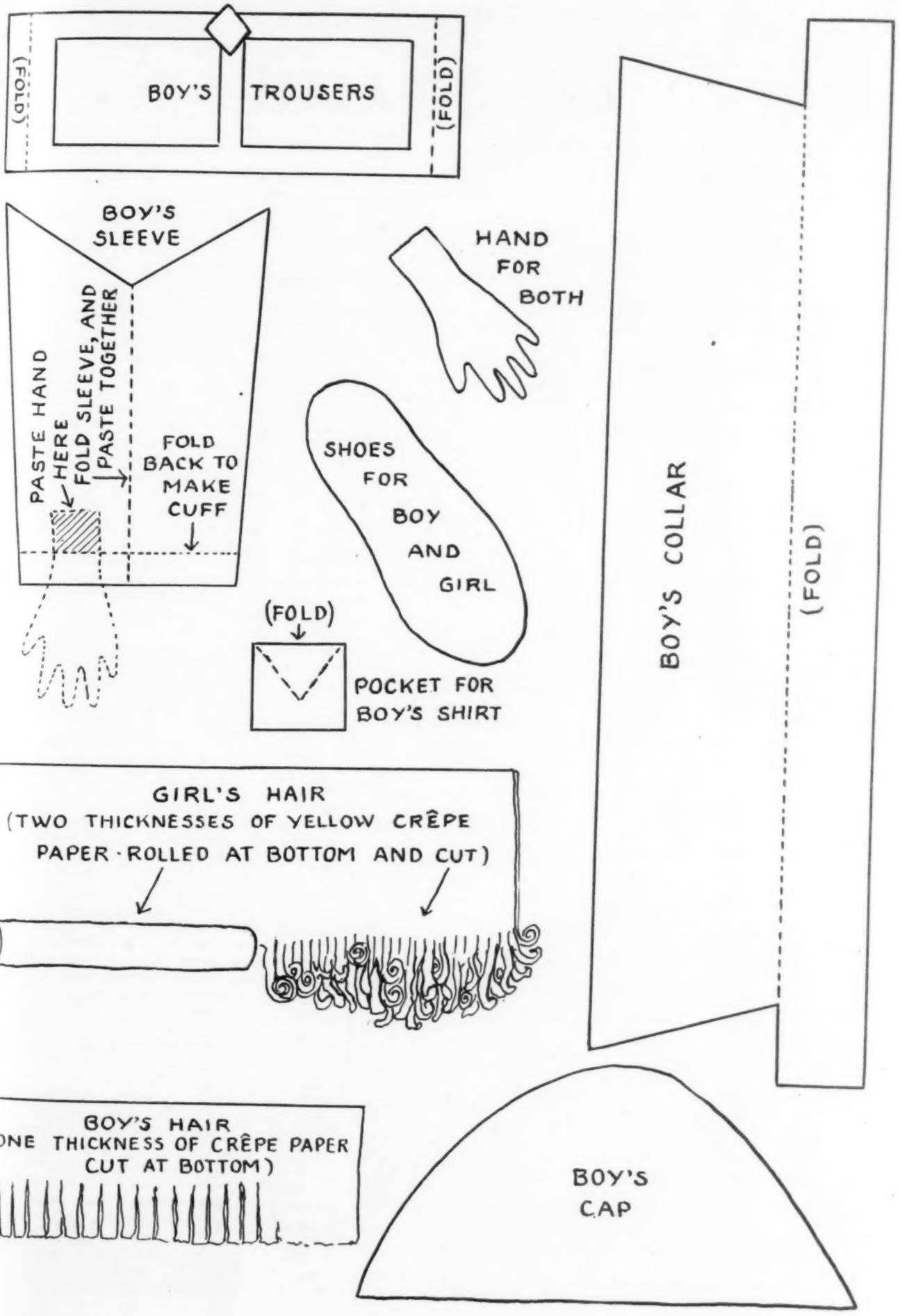
These bag garments are step-in models; that is, the twins just step into the bags; a rubber band is placed around the top of each bag, holding it firmly about the bottle neck, and there are the twins, all dressed for the party!

Their heads, which are removable, are balls of cotton covered with squares of white crêpe paper. Their faces are painted with colored crayons, and their hair is made of yellow crêpe paper.

When their heads have been made, a rubber band is placed around the neck of each and the tag end of the white crêpe paper is slipped through a hole in the top of a milk bottle. The ends of the paper forming the neck are then pasted down flatly and firmly to the under side of the pasteboard disk.

All the patterns needed for the completed costumes are shown in the illustrations. None, however, is given for the little girl's dress because all its parts are merely straight pieces of crêpe paper.

For the twins shown here, half pint cream bottles and white paper bags, size ½, are used. If larger bottles are used, larger bags will be necessary. These dressed bottles may hold any kind of beverage; when the guests are ready to drink it, they simply remove the heads and insert straws or sippers into the bottles. These queer little creatures are simple and easy to make. If mother cannot find time to make them, you can easily make the twins yourself.


(FOLD)
BOY'S TROUSERS
(FOLD)
BOY'S SLEEVE
PASTE HAND HERE
FOLD SLEEVE, AND PASTE TOGETHER
FOLD BACK TO MAKE CUFF
HAND FOR BOTH
SHOES FOR BOY AND GIRL
(FOLD)
POCKET FOR BOY'S SHIRT
BOY'S COLLAR
(FOLD)
GIRL'S HAIR
(TWO THICKNESSES OF YELLOW CRÊPE PAPER ROLLED AT BOTTOM AND CUT)
BOY'S HAIR
(ONE THICKNESS OF CRÊPE PAPER CUT AT BOTTOM)
BOY'S CAP

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

Tools and Tactics

DOES YOUR CAMPAIGN IN STUDY OF HEALTH STIMULATE OR STULTIFY?

A COURSE OF STUDY in health education, like every other course of study, is an outline of a campaign. It sets up objectives, the strongholds that are to be attacked, and suggests the tools or weapons that are to be used and the tactics to be employed. Since the plan of such an educational campaign is so important that it may determine victory or defeat, it requires the most careful consideration if it is to be effective.

Building Good Courses

The following are a few characteristics of a course of study in health which might recommend itself to busy teachers and practical educators.

Those who are trying to teach healthy living are so impressed by the traditional importance of learning about anatomy, physiology and hygiene that they sometimes forget that after all the real aim in health education is to bring such influences to bear on boys and girls that they may conserve and improve their own health. True, knowledge is often power, but in many cases it has little or no effect on the behavior of pupils. It is sterile. Knowledge functions only when it serves some drive and helps the individual to gain some end that seems to him to be worth while. The course of study should suggest some of the best motives that will enlist interest leading to action.

A good course of study will help the teacher to observe symptoms of ill health and signs of physical and mental fitness. It will suggest ways in which the teacher may cooperate with school physician, school nurse and pupils for the improvement of the health of her pupils. At the end of a school year the teacher should know how to check up results in healthier boys and girls.

In the past, one of the most common methods of getting out a course of study was for the supervisor of health education to sit in an easy chair and determine just what she should require of the teachers. The assumption was that first of all the health supervisors knew so much better than the rank and file of teachers what was needed in a course of study that the teachers' advice would be superfluous or troublesome. Second, it was believed that such a procedure would be carried out by the teachers with docility and even with enthusiasm. These two assumptions have been largely discounted by those who have made a scientific study of curriculum and course building. The teachers on the frontier of the educational forward movement know more about the detailed problems and the children with whom they deal than do the supervisors. The supervisors are better grounded in the sciences that relate to health and usually more sensitive to the latest developments in health education. Supervisors and teachers need to work together. Under such conditions, teachers are more likely to feel that the course of study has not been foisted on them and that it is practical. This cooperation between supervisors and teachers is usually arranged through the forming of committees. When teachers feel that they have had a hand in a course of study, there is a greater probability that it will really function.

The "Pot-Boiler Courses"

Many courses of study are almost exact copies of other courses of study. They are "pot-boilers"; they are purely imitative, with little or no attempt toward adaptation to local conditions. Course makers will find other plans suggestive, but a good course of study should consider not only the broader aspects of the subject of health instruction but the particular needs of children in a community. Those problems should be regarded as of fundamental importance. If there is general neglect of the teeth, dental hygiene should be stressed. If a community has no malaria and is not troubled by mosquitoes, it would be absurd to emphasize mosquito control. In a locality in which few fresh vegetables were consumed not only might the need of such food in the diet be made clear but school and home gardens might well be encouraged. Some communities in which the mortality rate of children from automobile accidents has been unusually large have been able to reduce the number of deaths by paying particular attention to safety education.

Most courses of study in health do not attract teachers. Some of them are dull, dry and even stupid. They contain in skeleton form the bare outline of topics to be studied and habits to be inculcated. The teacher who has an aversion for the subject will have a greater dislike for it than ever. Such a document does not seem to have one thing in it that is alive, and one has a suspicion that it will be even more tiresome to the children than to the teachers.

A Workable Plan

However, there are courses of study that lead one to think that it would be really fun to teach health. I have one before me as I write. It is interesting and practical. The print is large. The paragraphs are short. The units of work are noted in headings in the margin. The suggestions are clear and definite. Something is said about the way to approach a given topic and the methods and activities involved. There are topics for conversation. Correlations with other subjects are pointed out. References are made to books which might be used both by the teacher and by the pupils. In imagination one is transferred to a classroom where a live class is being taught by a live teacher.

Good health is something more than being up to weight, having good eyesight and physical vigor. It involves the adjustment of the individual to his environment: forming wholesome attitudes, learning to be successful, and gaining self reliance and happiness. Every good course of study emphasizes positive mental health.

TEACHING HEALTH

(In this column will be published each month concrete examples of good health teaching. Teachers are invited to send in contributions not exceeding 600 words and preferably less to the editor of this department. Illustrations of the actual work of children will be welcomed. Contributions accepted will be paid for but no manuscripts will be returned.)

A MILK PROJECT IN A RURAL SCHOOL

A GENERAL OPINION seems to be held by a large portion of the laymen that rural children have and eat more nourishing food than do children of the urban centers. However, experience seems to show that this is by no means true; on the contrary, undernourished children are found in many rural communities. The condition would be better expressed as one of malnutrition, for there are few cases of actual want of food, but there are many cases showing lack of proper food.

In the poor rural community the case is rare in which the parent has much knowledge of how to prepare the proper diet for the family and particularly for the young children. This is a matter of the first importance; at the present time the average rural school or community does not have means available to remedy this situation. The average rural school does not have a domestic science department. If the school is not able to furnish this work, what then is left to be done?

In a small rural school an approach was made to the problem in the following manner. It was apparent at once that the question of proper nourishment was serious in the lower grades and especially in the first three grades. The children did not have the energy of normal children; there were pale cheeks and dull eyes.

A period was set aside for the lunch hour, and the teacher acted as supervisor. At first there was some adverse reaction from the community on this supervised lunch period; however, this was overcome. Of course, a child's lunch is not a true index of the kind and quantity of food that he may get at home at the two other meals, but it did serve as a basis on which work could be done.

All the children of these grades were asked how much milk they drank each day. Those who did not drink milk or did not drink enough were asked the reason; this of course was done in a manner that did not cause the children to think that any reflection was being cast on the home. However, small children are not usually sensitive on such subjects. It was found that a few did not like to drink milk; but in the majority of cases, strangely enough, it was learned that they did not have milk at home or that there was not enough to allow the children to drink sufficient quantities.

During the health periods the teachers of these grades stressed the importance of milk in the diet, with the result that those children who could get it at home started drinking milk regularly. Now the real problem presented itself: What was to be done about those children who did not have milk at home? There was no available fund for buying milk for them; it was clear that another method must be used if they were to be supplied. The problem was placed before the Parent-Teachers' Association with the suggested plan that a committee should make a survey of the community to see whether enough milk would be donated and sent to the school building to supply this need. When the committee presented this need to the patrons, the response was most gratifying.

The milk was sent, and the teachers gave it to the children during the supervised lunch period. Those children who were drinking milk at home were asked to bring milk to school; this the children did most readily. The teacher took charge of all the milk, and all the children drank milk together at the lunch period.

No miracle was worked, for the procedure was simple, but there are fewer pinched and pale cheeks, and there is more luster in the children's eyes. That is compensation for any effort. There has also been more regular attendance at school, and a better grade of work has been done.

H. S. SHEARHOUSE,
Barwick, Ga.

TEACHING HEALTH TO BOYS AND GIRLS IN HAWAII

WHO WANTS to be sick? Certainly not the students of the Kamehameha School of Honolulu.

The great value of the Red Cross course in home hygiene and care of the sick, taught at the department for girls, lies in its adaptability to all classes and conditions of people. Formerly the Hawaiians were a strong, stalwart people, living outdoors, fishing and swimming; but much of this changed with the coming of civilization.

Two of Hawaii's greatest problems are the high infant mortality rate and the need of more health instruction for the Hawaiian people. Out of this need grew a home hygiene project.

Several times a year these students visit their own homes or the homes of their friends and demonstrate various nursing practices, including the bathing of a well baby, changing the linen with the patient in bed and taking the temperature. Arrangements are made well in advance, and frequently the neighbors, too, are on hand. The visits are made during the regular school session. Booklets made by the girls and illustrated with original drawings are distributed. One is for the mother, and one is to be given by her to a friend, thus starting a chain of health instruction.

Later the visit is discussed in the English class. Not only are these visits of value to the community but they also serve to stimulate the interest of the student.

Not having a classroom of sufficient size, it was decided to make one. Permission was given to use the large, well lighted trunkroom in Kapiolani Hale (dormitory).

Hawaiian girls are shown weaving coconut palm leaves for the Home Hygiene Laboratory.

Cadets from the department for boys, with the school bus, were commandeered. A trip to the beautiful Moanalua Gardens yielded coconut palm leaves for the partitions; the trunks were quickly parked in one corner, and the palms were set up by the boys and woven by the girls, thus making a fine wall in real Hawaiian style.

When it is completed, the Home Hygiene Laboratory will consist of a large bedroom, nursery, kitchen and bathroom, and will be an ideal place for study and practice.

Each member of the class daily contacts three nonmembers to note the first symptoms of illness; and woe to the girl who has not reported her cold or headache to the nurse! In this way many little troubles are cared for, and more serious trouble is avoided.

This project, which includes the entire school, starts off with the Good Health Cheer Contest, refereed by three football cadets. Frequently the prize of a holiday is won by sheer force of lung power combined with originality and rhythm. Daily health programs, health messages and good posture awards are presented during the week.

Then comes the Good Health Banquet. Good kaukau! Good fellowship! Good entertainment! The most recent was a gay gipsy cabaret with elaborate costumes, songs, cheers, dances, music and the pageant of the presentation of the Good Health Queen and her court who rule supreme during the week.

Four candidates for queen are chosen from among the members of the home hygiene class. When any girl in the school reports for early treatment, she may cast ten votes for her favorite candidate. Any student discovering and bringing to the dispensary an unreported case may cast twenty votes.

Shortly before Good Health Week the votes are counted by one of the classes in the mathematic department.

And so the idea of "health for all" is once more brought home to the students.

ORA L. SAUNDERS,
Honolulu, Hawaii.

SAVING LIVES THROUGH THE STUDY OF RABIES

IN A SCHOOL where many children have pets, the study of rabies proved most interesting to the pupils and afforded a real contribution to the health of the community. It started with the pupils' concern over a "mad dog's running amuck and biting a cow, two horses and fourteen people before they finished him," and their surprise that such a thing could happen "when the weather is so cool."

The children had been led to believe that dogs go mad only during "dog days," from the last of July to the middle of August. The son of the health commissioner informed them that rabies develop at any time of the year but that dogs are more liable to become infected during the summer because they travel about more freely. Other wrong conceptions which are still held by some persons were discussed. Among these were the fallacies that a mad dog will never ford a lake or stream; that if the mucous lining of a dog's mouth is black, the dog's bite is sure to cause rabies, and that a "mad stone" is a cure for the disease.

It is now known that a mad dog will often cross rivers without fear. He avoids drinking water because the disease so affects his throat that he cannot swallow. It has been discovered, too, that the mouth lining of some perfectly healthy dogs is dark colored and that color does not have any relationship to the disease. As for the mad stone which some families have treasured from one generation to another, not only is it worthless but it is actually dangerous as a source of infection whenever it is used. This stone often proves to be a ball of hair which is taken from the stomach of some animal that has licked the hair off and swallowed it. Applied to the wound and left there until it fell off, the mad stone was supposed to absorb all the poison from the mad dog's bite and thereby to attain virtue for further cures.

In the quest for information about this disease which any day might afflict their pets or friends, original research on definite assignments was carried on by members of the class. Some visited the local health commissioner; others talked with the veterinarian. Requests for government bulletins on the subject were the basis of English and writing lessons. In geography class the students sketched maps of continents and colored the countries according to the presence of cases of rabies, whether they have cases of rabies, whether they have eradicated the disease, or whether they have never had it. Australia has never had a case of rabies, owing to the fact that the importation of dogs is illegal. Sweden, England and Holland have practically stamped out the disease by enforcing the muzzling of dogs. In France, Belgium, Hungary and Russia, rabies is still widespread. Practically all states in the United States have had cases of rabies, the South-Atlantic and Gulf states being especially affected because the climate permits dogs to range about both during the summer and during the winter, and the poor people of the South have a tendency to keep many dogs and cats. All dogs run freely in every state, and every attempt to limit their freedom is met with opposition.

Through reading, interviews and clippings, some interesting material was brought together for a classbook of real value to the community as a whole, on a subject about which few of the citizens had any knowledge. It was found that rabies was mentioned in writings, even before the birth of Christ, as a disease dangerous both to animals and to human beings. Considerable superstition developed because people were helpless to control its terrible effects on the human race. Nothing was known of its real nature until Pasteur, a chemist eager to learn the causes of diseases affecting the progress of France, began his studies. About fifty years ago he discovered that the poison that causes rabies is found in the saliva of an animal having the disease. After a great deal of experimenting he devised a means known as the Pasteur treatment whereby animals and human beings are protected from the disease when they have been bitten by such an animal or when its saliva has come in contact with an open wound or scratch.

It was in December that rabies developed in the county where this school is located; and as the situation gradually grew worse, the feeling of responsibility of these school citizens steadily increased. They took a survey to see how many dogs were owned by members of the class and tabulated them to show how many were muzzled, how many were kept on a leash and how many had been protected against rabies. As the study progressed, the pupils became more insistent, both in school and

out of school, that all dogs in the community should be immunized. So great was their zeal that the dog owner who did not get this and other information from several school children was rare indeed. They warned him to watch for any change in his pet's disposition; if his playful dog suddenly became sullen, suspicious or evasive, or if a quiet dog became playful and affectionate, the dog should be isolated and watched or a veterinarian should be called. If there was a difference in tone or quality of the dog's bark, if he acted as though there were a bone in his throat, or if he swallowed sticks, bones or other unusual objects, these were all to be considered as possible symptoms—and "look out, mister, if your dog goes off across country biting everything in its way, and comes back exhausted with froth around his mouth and a swollen tongue!"

Each child who had his pet immunized brought him to school, told how much it had cost, how it had been done and how the dog acted. When the pets of all in the room had been so cared for, the owners formed a committee to interview the health commissioner regarding rabies in their county. "How many cases were there last year?" they asked. "What animals were affected, and what action was taken in regard to them? How many persons were bitten, and what was done for them? Did any cases of rabies develop in the persons bitten? How is the Pasteur treatment made? When and how is it administered? Where do they get it and how much does it cost? How can children help in the local situation?"

So they learned that the measures for preventing a recurrence of rabies in the community include watching pets and keeping them well, muzzling dogs when releasing them from home, placing dogs on leashes when taking them to public places, having all valuable pets immunized for rabies by a veterinarian, and reporting stray and homeless dogs to the health department.

During the time this study was being conducted, six cases in dogs and nine in cattle were reported to the health commissioner. A number of other cattle were also bitten by dogs which died from rabies. Eleven persons were given the Pasteur treatment as a result of contact with these animals. Of course, nobody can tell how many more there would have been had not the school children taken the community problem seriously—as children do.

BERTHA STREETER,
Detroit.

THE CHOICE AND USE OF HEALTH ACTIVITIES

A CUSTOMER may become annoyed in making a selection for a dress when there are many attractive pieces of goods from which to choose. There may be somber and gay colors, smooth and rough finishes, printed and plain pieces, expensive and inexpensive qualities, and heavy and light weights. An experienced clerk may help the customer make his choice not only by studying the type of the individual but by finding out what use is expected to be made of the garment.

Teachers of health are often faced with just such an annoying problem when they are choosing health activities for their grades. The writers of courses of study and textbooks are helping the teacher make a wise choice.

The list of activities from which the curriculum writer makes a selection is rather extensive. Activities are adaptable in varying degrees to the different age levels. Some activities increase in usefulness and complexity from grade to grade while others decrease. For example, such activities as story plays and dramatizations are most useful and mostly used in the primary age group (grades 1 to 3). An activity that involves group or team work may have its beginnings in the first grade and may gradually increase in complexity as the child grows older. The first grade child may be learning to cross the street along with his classmates while the sixth grade pupils are organized into a safety patrol for the safety of the first graders. Hand construction work in the early grades meets the need for developing the big muscles; in addition the children are using their accessory muscles in such skills as making the details of a marionette's face or putting Indian symbols on pottery.

Ten different types of activities and examples illustrating how some of them are used in the health lessons in elementary grades are listed below. These examples were selected from "A Health Instruction Guide for Elementary School Teachers," written by Pinckney, Miller and Pettus of the University of Texas. The dividing line between these types is not definite, yet each is sufficiently distinctive to help the teacher become familiar with the wide variety of activities. An acquaintance with the types of activities helps the teacher to make the daily procedure varied and interesting.

Hand construction.—Building, cutting, sawing, hammering, nailing, fitting, molding, manipulating, painting, making of puppets and marionettes, cartooning, sewing, making of posters and scrap books.

1. Constructing doll house, grocery store, Indian pueblo, bee hive.
2. Molding of pottery, fruit, marionette heads.
3. Cutting pictures of healthy people, patterns of sun suits.
4. Cartooning of safety and cleanliness practices in the home.
5. Sewing sun suits, weaving Indian rugs, making tooth powder.

Physical activities.—Play, free play, games, stunts, folk dances, relief exercises, first aid practices, field excursions, fire drills, shopping, gardening, demonstrations, care of plants and animals.

1. Free play with grocery store, pueblo, demonstration farm.
2. Playing health examination, postman game, guessing game.
3. Imitating pets, "Rooster Fight, Mule Kick."
4. Binding cuts and scratches, removing particles from the eye.
5. Demonstrating shampooing, traffic practice, table manners.

Self expression.—Free discussion, stories, dramatization, songs, tests, reports, radio broadcasts, "What Would You Have Done?" problems, arguments, debates and summary activities.

1. Discussion and solution of problems relating to table manners, traffic hazards, sportsmanship.

2. Stories about Indian life, farm life, salmon.
3. Dramatizing getting ready for school, rising time on the farm.
4. "Yes and no" test, picture completion test, multiple choice test, true and false test.
5. Debating on Foolhardiness vs. Bravery; Country Life vs. City Life.

Group activities.—Inspections, growth records, drills, practices, surveys, teams, committees, clubs, councils.

1. Morning inspection, inspection of room, desk.
2. Recording of height and weight, accidents, sleep, temperature of room.
3. Drills for tooth brushing, fire, handwashing.
4. Committees for window ventilation, caring for bees, bulletin board.
5. Safety councils, fire drill council, health clubs.

Visual aids.—Flash cards, pictures, slides, motion pictures, cartoons.

1. Word pictures, color flash cards.
2. Cut-out pictures of different kinds of homes, fruits, cafeterias.
3. Slides of safety practices, milk production, frog life.
4. Movies of posture, pets, mosquitoes.
5. Cartoons of safety practices, good sportsmanship, cleanliness practices.

Excursions.—Room, playground, school, home and community trips, field trips, and museum trips.

1. Excursions to first aid cabinet, fire alarm system, heating plant.
2. Excursions to nearby playgrounds, parks, gardens, camps.
3. Visits to hatcheries, apiaries, farms, curb markets.
4. Trips to nearby groceries, cafeteria.
5. Excursion to museum to examine exhibits of shoes, Indian life, ant life.

Writing.—Creative slogans, stories, biographies, plays, newspapers, calendars, books, records, charts, graphs.

1. Composing of safety calendar, slogans, menu cards, advertisements of sun suits.
2. Writing a health book.
3. Original story "Why Collards Are Green," original biography of father.
4. Graph of rat's growth record.
5. Recording of observations of sleep of babies, bees gathering honey, shoes of people.

Collecting.—Acquiring and organizing of materials for school bulletin boards, exhibits, museums and summer camps.

1. Collections of vegetables, newspaper items of accidents to children.
2. Bulletin board display of pictures of safety signals, dental toilet articles.
3. Exhibit of shoe collection, animal teeth collection.
4. Exhibit of units on nature study, bees, frogs, birds, ants.
5. Borrowing of collections from museums, loan libraries.

Reading.—Textbooks, supplementary books, encyclopedias, periodicals and source book references.

1. Textbook reading assignments on posture, ventilation and other topics.
2. Reading and reporting on supplementary book references (for fast pupils).
3. Specific encyclopedia references relating to nature study, biographies, diseases.
4. Illustrative materials from geographic, nature study, food and clothing magazines.
5. Additional information from books or specific topics.

Experimenting.—Problems involving questions, observations, judgment, skills, testing and conclusions.

1. Thought-provoking questions about vision, hearing, self control.
2. Problems on focusing, ventilation, balancing.
3. Analysis of sun's rays, dissection of cow's eye.
4. Observation of growth and development of seed, flower, plant.
5. Observation of growth and development of frogs, birds, bees.

JEANIE M. PINCKNEY,
Austin, Texas.

NEW HEALTH BOOKS AND TEACHERS' MATERIALS

DR. EDWARD S. ROBINSON has contributed so much to a sound and popular psychology that the title of his new book, "Man As Psychology Sees Him,"[1] sounds most inviting. The reader will find this a most readable book. The first chapter is entitled "Motives to Action," and the reader is plunged into freudian psychology with emphasis on unconscious motives. It is rather a disappointment to one who craves practical psychologic knowledge to approach the end of the chapter without a clear statement of the specific motives that govern action. Although the book is rather vague in places, it presents a good view of modern psychology. The author makes a strong plea for a psychology based on facts, an objective attitude toward the problems of life. "The tired mother, who speaks sharply to a tired and crying child, does not know what she is doing psychologically," says the author. "Yet, what if millions of mothers did know? What if they treated their children as objectively as they treat a clock which stops or a vacuum cleaner that fails to work?" Here is a point of view that is most suggestive and helpful to teachers. The scientifically minded teacher first inquires into the reasons why the child misbehaves and then seeks to prevent or correct them.

1. By Robinson, Edward S. Price, $2.50. Pp. 376. New York: The Macmillan Company, 1932.

THE NAME of Happy Goldsmith on two unique booklets, "The Story of a Pretty Bad Actor" and "Why Boys Leave Home,"[2] is a sufficient recommendation as to their "pep" and practical worth. The style and the illustrations are of the kind found in Happy's other publications. In this case his sprightly books are intended to appeal to parents.

IF ASKED to name the outstanding leader in health education, no one who is familiar with the modern movement in health education would hesitate to pronounce the name of Dr. Thomas D. Wood. In all great health meetings for a quarter of a century or more, he has been prominent as a presiding officer, a speaker or an active participant in discussions from the floor. He has served with distinction on many national organizations and has been responsible for the publication of many valuable reports and books that have helped to guide teachers and educators. He was chairman of the joint committee on health problems in education of the National Educational Association and the American Medical Association which authorized the publication of "Health Education," a program for public schools. His geniality won for him many friends.

It is a pleasant surprise to open this volume, "Selections from the Addresses of Thomas D. Wood,"[3] which was published by his friends on the occasion of his retirement from active service at Teachers College, Columbia University. These selections were well chosen, and although some of them were published many years ago they are still as sound as ever and reveal the ideals and vision of the author. Dr. William F. Russell, Dean of Teachers College, writes an appreciative foreword.

2. By Goldsmith, Happy. Pp. 12. Cleveland: The Cleveland District Dairy Council, 1932.

3. Pp. 58. New York: 1932.

NEW BOOKS ON HEALTH

LINCOLN AND THE DOCTORS

By Milton H. Shutes, M.D. Pp. 152. New York: The Pioneer Press, 1933.

THE SERIES of articles by Dr. Milton H. Shutes, published in HYGEIA, has now been republished in book form, most artistically, by the Pioneer Press. The book is beautifully printed; it has some fine illustrations and would seem to be an absolutely necessary part of the collection of any collector of Lincolniana. The book is published in a limited edition.

MORRIS FISHBEIN, M.D.

OUR BABY'S FIRST SEVEN YEARS

Fifth edition. Pp. 85. Chicago: The Mothers' Aid of the Chicago Lying-In Hospital, 1933.

TODAY intelligent parents cooperate with scientists to make the world a safer place for babyhood. With this purpose the Mothers' Aid of the Chicago Lying-In Hospital compiled and published in 1928 the first edition of this book, now in its fifth edition. "For many years," writes Dr. Morris Fishbein in his endorsement of the book, "physicians have wanted intelligent parents to keep records of the illnesses of their children, of the manner of their birth and of their growth and development, because such facts may be of the greatest importance in making decisions later in life." In addition to the aid that the mother and the physician may derive from such a study, it is hoped that this book will exert an even wider influence, for the mothers who are keeping these diaries are urged to submit them for study and analysis at the end of the seven years. The resulting compilation of statistics on the physical and spiritual development of the child in those plastic first seven years should reveal valuable data which will be welcomed by physicians and parents.

Seldom does one find such a happy combination of the charming and the practical as is presented in this edition. The alert compilers have even improved on the perfection of the former editions and have added several features that will prove invaluable to the many mothers who find esthetic delight and practical help in this modern baby record book.

The delicately colored cover has added an invisible yet thoroughly practical feature in that it is now washable. There are new record pages, suggested by Dr. Hazel Cushing of the board of education of Rochester, N. Y. A complete and modern reading list for parents has been prepared by Mrs. Davis McCarn of the Chicago Association for Child Study and Parent Education. A list showing toys suitable for each of the seven year levels has been furnished by Mrs. M. Ettenheim, specialist in educational toys. An insert on bowel and bladder training as formulated by the Infant Welfare Society of Chicago emphasizes the fact that mental health depends on regular and independent health habits; it also gives a list of the habits and adjustments normal to a child at each period of his early life.

Like the other editions, the book closes with a family tree and a space in which may be listed the salient talents and characteristics of the child's antecedents—to prove or to disprove the truth of the saying that "our days, our deeds, all we achieve or are, lay folded in our infancy."

LEOLA J. HARRIS

WATER PAGEANTS

By Olive McCormick. Cloth. Price, $2. Pp. 138. New York: A. S. Barnes & Co., Inc., 1933.

OLIVE McCORMICK has been prompted by the desire to make water sports colorful, glamorous and playful. She places no stress on the competitive angle of water games; she emphasizes swimming games and stunts, rather, as a means of becoming acquainted with the water and developing the art of swimming and the desire to perform.

Her purpose is broadly put into practical form by the wealth of suggestions found in this book. The material has been based on practical experience of the author gleaned from ten years' work in this field.

At the outset she has outlined the organization necessary to conduct a water pageant successfully. In following chapters she describes, respectively, costuming and make-up, music, scenery and lighting, the writing of a water pageant, and swimming formations, stunts, games and canoe regattas. Complete instructions for seven water pageants complete the breadth of her subject.

Indoor and outdoor adaptations and variations have been considered in producing water pageants.

Throughout the book are important suggestions for safety in the water. In the first chapter she has outlined seven important rules, one of which necessitates the presence of life savers at all rehearsals, another of which advocates the buddy system, whereby each swimmer chooses a partner whom he is definitely assigned to stay with and watch during all rehearsals and the performance. The suggestion is also made to make rehearsals in the water of short duration to avoid overdoing.

The book contains occasional pictures; numerous figures and diagrams dot its pages.

"Water Pageants" will be especially welcome to those physical education directors and swimming instructors in colleges, high schools, camps and various organizations who realize that swimming is most healthful when it is conducted for the sake of play, performance and exercise.

VIVIAN J. LOOMIS

QUESTIONS AND ANSWERS

Parathyroid Glands

To the Editor:—Has science discovered an extract to build up the parathyroid glands as thyroid extract builds up the thyroid gland? In the case I have in mind, the thyroid operation disturbed these glands, causing tetany, and the person must supplement the use of the extract by calcium lactate. Will this have to be supplemented always, or do these glands eventually right themselves? Would one have to take an extract to build them up?

I. S., Indiana.

Answer.—The parathyroids are small glands which lie in the tissues immediately surrounding the thyroid; sometimes they are imbedded in the thyroid itself. In operations on the thyroid it sometimes happens that they are accidentally removed or that the swelling of the tissues resulting from the operation interferes with their functions. In such cases a condition called tetany develops, in which there is rigidity and spasm of groups of muscles, including those of the jaw, the hands and feet, and often an appreciable sense of weakness of the entire body. Associated with these changes in muscular reactions there is frequently a decrease in the amount of calcium in the blood.

An extract of parathyroid glands will replace the lacking parathyroid secretion; this extract favors the return of blood calcium to normal level and frequently relieves the symptoms of parathyroid tetany. The action of this extract is thus a replacement therapy and cannot cause the regrowth of glands that have been removed. If the tetany is caused by interference by pressure on parathyroid glands which still remain, but are temporarily prevented from normal functioning, the extract may bridge over the period of acute lack of secretion until there is return of function in the remaining glands.

It has been found also that the symptoms of parathyroid tetany can be relieved by giving calcium in a form that can be absorbed from the intestinal tract, either as calcium chloride or as the more palatable calcium lactate. In emergency, calcium chloride has been given intravenously. In many cases the long continued use of extract of parathyroid glands has not been satisfactory, and a combination of treatment with the extract and calcium lactate is necessary. Sometimes treatment with calcium alone will control symptoms.

With further study of these cases it has been found that foods which are rich in certain substances called purines or which give rise to purines in the process of digestion are liable to increase the symptoms of tetany. The withholding or reduction of these foods, which include coffee, fish, sea foods and meats, enables patients to get along in comfort with smaller amounts of calcium. Other supplementary treatment includes the use of viosterol.

Pendulous Breasts

To the Editor:—Are there safe and wise methods of reducing the size and remedying the flabbiness of pendulous breasts, in girls from 15 to 25 years of age, without interfering with the normal functioning of those organs? Will you refer me to reliable articles or books dealing with this matter which may be available in large general or medical libraries? What kind of a specialist would be an authority in such matters?

H. A., Massachusetts.

Answer.—There is no way in which the size of full grown breasts can be affected other than by surgical measures. There are no articles dealing with this matter except the cheap advertising in unreliable magazines. There are no "authorities" on this matter because this is something that cannot be done.

Kidney Stones

To the Editor:—What is the cause of kidney stones? Does hard water or salt play any part in their formation?

T. W., Idaho.

Answer.—Kidney stones are liable to have infection as a fundamental cause. They are deposits of mineral salts from the urine. Hard waters alone cannot cause kidney stones; if they could, every one drinking hard water would have them, which obviously is not the case. Persons with a tendency to kidney stones, however, are often advised to drink only distilled water; in any event they should drink a great deal of water, thus keeping the urine dilute.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Cyanide Poisoning and Methylene Blue Injections

To the Editor:—Is the injection of methylene blue effective in cases of cyanide poisoning?

S. B. S., New York.

Answer.—Methylene blue has recently been shown experimentally to be useful in cases of poisoning by cyanides or by carbon monoxide. Dr. J. C. Geiger has published the following articles in *The Journal of the American Medical Association:* Methylene Blue Solutions in the Treatment of Carbon Monoxide Poisoning (April 8, 1933, vol. 100, p. 1103); Cyanide Poisoning in San Francisco (Dec. 3, 1932, vol. 99, p. 1944).

M. M. Brooks has published "The Effects of Methylene Blue on HCN and CO Poisoning" in the *American Journal of Physiology* (Oct. 1, 1932, vol. 102, p. 145).

Self Medication

To the Editor:—Does the American Medical Association have circulars stating the best medicines to take for certain things, such as the best iron tonics for anemia?

M. B., Illinois.

Answer.—The American Medical Association does not have circulars telling the "best medicines to take for certain things." The sick cannot be treated that way because all cases are different and even the same case is different at different times. Good doctors treat the patient, not the disease. One cannot reduce medicine to a mechanical routine; medicine cannot be ordered for a disease without consideration of all the other factors that enter into the treatment of a sick person. Do not overlook the word "person." When one starts treating patients by a system, as certain institutes do, one fails most of the time. Sick persons want personal attention, not pills and powders out of a machine.

Great hospitals use it—

USE AS YOUR SAFEGUARD against infection from cuts, scratches and open wounds the powerful, non-poisonous antiseptic many great hospitals are using. In case of serious injury consult your physician.

This modern antiseptic, Hexylresorcinol Solution S. T. 37 (1:1000), is stronger than carbolic acid in any usable solution, yet safe even if swallowed. So powerful that leading hospitals rely on it daily for use in operations, for severe burns and open wounds, and in cases of infection. Yet so safe, you can use it freely in your own home, and teach your children to use it.

Apply it instantly to every cut and scratch. Pour it right into open wounds—even full strength, it will not sting or burn. It spreads more rapidly and more deeply than many other antiseptics into the crevices of wound tissue.

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The Seal of the Council on Pharmacy and Chemistry of the American Medical Association should serve as an indication of its trustworthiness.

Buy a bottle today. It's economical. The 50¢ bottle is now a whole ⅔ bigger than before. And you get the large size for only $1.00 instead of $1.25. Prices now the same in both the United States and Canada.

HEXYLRESORCINOL SOLUTION S. T. 37
Made by SHARP & DOHME

Life in the Balance

COULD you forgive yourself, if a member of your family or a friend should die while you were standing by, helpless, waiting for the doctor? How would you feel if a life should slip away because you had never learned to give artificial respiration?

When someone is overcome by gas (illuminating, coal gas, carbon monoxide, or the gases in smoke), shocked into unconsciousness by electricity, or is nearly drowned, there is no time for guesswork or experimenting. You must get to work *instantly*—without a second's delay—and you *must know how.*

As a world-famed physiologist puts it, "Often, in drowning, electric or gas cases, the vital machine merely needs to be started again. It is like cranking an automobile when the engine has stalled and the self-starter is out of order."

Continue artificial respiration for four hours or longer if necessary. When changing operators, do so without losing count. Not infrequently the patient, after temporary recovery, stops breathing. Resume artificial respiration at once. Thousands upon thousands of lives have literally been snatched from death by this method of life saving.

In many progressive communities, fire departments, hospitals, gas and electric companies use inhalators containing cylinders of carbogen to stimulate breathing in conjunction with artificial respiration. If an inhalator is available, send for it, but let nothing interrupt immediate and continuous effort to restore natural breathing by artificial respiration.

Read the life-saving instructions under the diagrams; then practice them with a friend. Once learned, they will never be forgotten and by means of them you may save a life dearer to you than your own.

COUNT "ONE"

Do not wait to remove clothing but begin at once to apply artificial respiration. Lay the person face down on floor or ground, one arm extended directly forward. Bend the other arm at elbow and rest cheek on back of hand, mouth toward finger tips. Kneel, straddling patient's right or left leg, or both legs, at the thigh.

Place your hands on each side of back, just above the belt line, with your wrists four inches apart, thumb and fingers together; the little fingers over and following the line of the lowest rib; the tips of fingers just out of your sight.

* * *

COUNT "TWO"

While counting "one," "two," (a second for each count) with arms straight, (not bent at the elbow) swing weight of body forward until shoulders are directly over hands.

* * *

COUNT "THREE" *(hands off)*
COUNT "FOUR" *and* "FIVE" *(rest)*

While counting "three" snap the hands sideways off the patient; at the same time, swing your relaxed body back to a resting position on your heels. While counting "four" "five"—rest.

Repeat these operations rhythmically, deliberately swinging forward and backward twelve to fifteen times a minute—a complete respiration in four or five seconds.

* * *

The Metropolitan's booklet "Artificial Respiration" which contains further information of value in giving First Aid to one suffering from electric shock, gas asphyxiation or apparent drowning, will be sent free upon request. Address Booklet Dept. 733-Z.

METROPOLITAN LIFE INSURANCE COMPANY
FREDERICK H. ECKER, PRESIDENT ONE MADISON AVE., NEW YORK, N.Y.
© 1933 M. L. I. CO

WHY SHOULD POSTMORTEM EXAMINATIONS BE DONE?

(Continued from page 609)

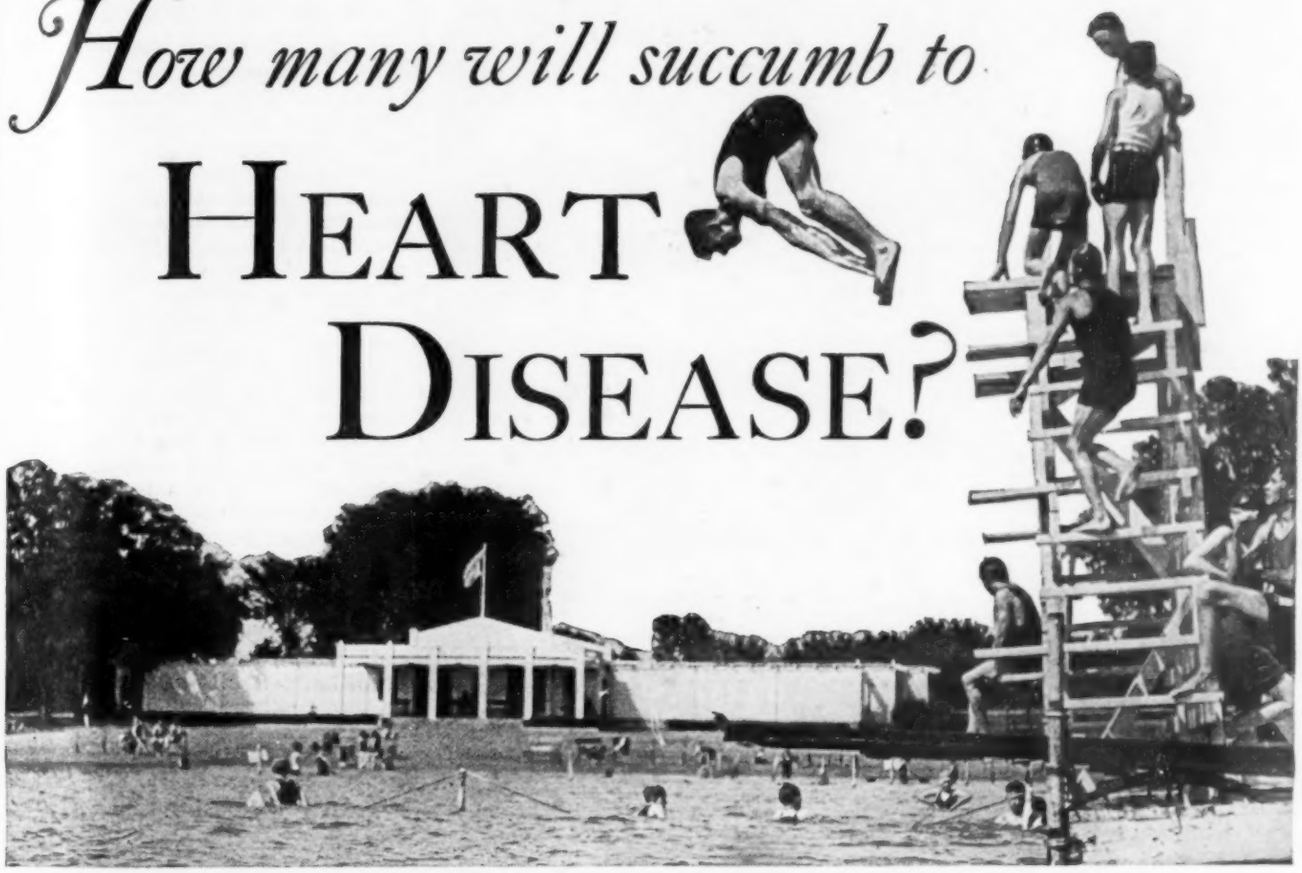
tages which they themselves have never had. If those children are to be attended by physicians of the highest skill, those physicians must be trained now; and the giving of permission for autopsies will contribute materially to that training.

Every one is interested in the baffling maladies which may rise up and destroy man. Such diseases must be observed and studied before means of combating them may be found. The first one of those cases must always occur, and the sooner it is recognized and investigated, the sooner may other cases be cured or prevented. The majority of these unusual cases are first seen at the autopsy table, and by autopsies in similar cases are the effects of treatment studied and checked.

If knowledge is to become general and permanent, each interesting, new or educational case must be shared with physicians other than those attending the patient. No one man sees enough of the unusual cases to make an exhaustive study of any one phase of an unusual disease, but all these cases, made available to medical men throughout the world, constitute a group or series large enough to afford thorough study and to make intelligent deductions possible. So the unusual case, designated only by number, of course, is first reported at the hospital staff meeting, later to the county or state medical society, and still later perhaps before some national or international organization of medical men. Then, when the study is completed, it is written in the form of a treatise and printed in some medical journal where it remains for all time to be a source of information and stimulation to newcomers who are seeking knowledge. All these medical journals are carefully indexed, filed, abstracted and kept available in medical libraries where physicians come for information. The report of an autopsy may therefore start a ripple on the pool of knowledge, a ripple which may grow in ever widening circles until it reaches far shores unseen by the eye and but dimly guessed by the mind. Should all autopsies be refused, the largest single source of medical knowledge would be closed to the world, both to the layman and to the physician. For such a deplorable condition the layman would suffer more and more as the physicians ceased to grow and to develop.

(Continued on page 666)

How many will succumb to HEART DISEASE?



AMONG children 10 years of age, the probability of ultimate death from heart disease is: For boys—222 out of 1000; for girls—236 out of 1000. Figures supplied by the METROPOLITAN LIFE INSURANCE COMPANY.

They swim . . . hike . . . play. Pack action into every minute. It seems far-fetched even to consider heart disease in connection with children, but more of them than is ordinarily supposed will become its victims. Already its beginnings are present in some. For many childhood diseases and foci of infection (such as unhealthy tonsils and decayed teeth) impair the heart.

With heart disease, as with practically all other disorders, *early* discovery and treatment are the best safeguards against serious consequences. Because this is true, the medical profession urges annual health audits.

At least once a year take your children to your physician for a complete check-up. And at the same time be examined yourself. This is the surest way for all to enjoy health.

X-ray Examination

One of the physician's greatest aids in detecting diseases early is x-ray examination. Suspected parts of the body are radiographed to obtain definite visual proof of internal conditions. When your doctor orders x-ray examination, he is employing one of the most effective aids in diagnosis.

HAVE AN ANNUAL HEALTH AND X-RAY EXAMINATION

Mail the coupon for a free copy of the booklet, "X-rays and Health," which tells how x-rays are used in helping to keep you well.

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You owe these puffed foods, and all your delight in them, to Prof. A. P. Anderson.

He was seeking a way to break up starch granules so the digestive juices would reach them more quickly. So he puffed the grains to eight times their natural size by an explosion of steam.

When he did this, he found that he had created two most enticing cereal foods.

Note the curious process

The whole wheat or rice kernels are put into sealed guns. Then these guns are revolved, for forty minutes, in a heat of 550 degrees.

This terrific heat turns the moisture in the grain to steam, and the pressure becomes tremendous.

Then the guns are fired. Instantly the steam explodes every granule. Thus the kernel of grain is expanded eight times. It becomes porous like bread.

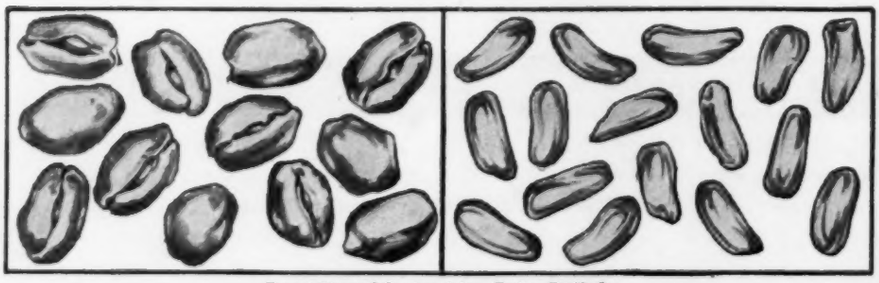
Puffed Wheat, 10c—Puffed Rice, 15c

There was never a cereal food so delicious. Never one more digestible.

Think of unbroken wheat or rice berries puffed to eight times their size. They are so porous that they melt in the mouth. Yet they are crisp.

Let the Children Know

Get Quaker Puffed Rice, and Puffed Wheat today. Let the children decide which they prefer. Don't wait till tomorrow—order them now.



Exact Size of Grains After Being Puffed

Made only by The Quaker Oats Company

WHY SHOULD POSTMORTEM EXAMINATIONS BE DONE?

(Continued from page 664)

Because autopsies are considered to be an index of the scientific attitude of the hospital, a sign of that hospital's progress and sincerity, the number performed have come to affect the standing of a hospital. The members of the American College of Surgeons have recognized this and have decreed that in order to be accredited by them a hospital must have autopsies performed in at least 15 per cent of the deaths occurring within that hospital. They decree this, not because they consider 15 per cent an ideal number but because they know that in any hospital, if the reasons were to be submitted to the bereaved relatives, at least 15 per cent would be willing or anxious to have autopsies in deaths occurring in their family. The average hospital, however, aspires to a much higher number. The largest private clinic in this country obtains from 88 to 90 per cent of autopsies in its deaths; this is one of the factors that have contributed richly to its phenomenal growth and popularity, its reputation for honest, conscientious treatment and modern progression.

Strange as it may seem, many hospitals treating both private and free patients report less objections to autopsies among their private patients than among the ward patients. This is doubtless due to the fact that the relatives of the private patients are more understanding of the motives, more appreciative of the benefits to be obtained, more anxious to help the physician and less suspicious of ulterior motives.

As general knowledge grows, as the public becomes more and more conversant with medical matters, as superstition and blind sentiment fade away before clear logic and wide understanding, and as dark ignorance gradually becomes replaced by enlightening knowledge, more and more autopsies will be performed and accurate information will be substituted for hazy conjecture. Then the vital statistics will begin to be of some value; man will know what diseases carried off his ancestors, and problems of heredity can be successfully studied. No longer will the majority of sudden deaths be ascribed to heart disease, and no longer will violent deaths be considered as self evident. To such improved conditions can every one, without pain, suffering or financial expenditure, contribute bountifully. During the state of health, happi-

(Continued on page 667)

WHY SHOULD POSTMORTEM EXAMINATIONS BE DONE?

(Continued from page 666)

ness and sanity, this vital subject can be considered, discussed and wisely decided. Then when tragedy comes and grief befogs the judgment and prevents clear thinking, the question of an autopsy will not come as an insult added to an injury. By the favorable consideration of this most important, but usually shunned, subject, much can be contributed to general knowledge, to satisfactory insurance claims, to physicians' knowledge and to the building of medical science for those who will live after us.

DEMOCRATIC EDUCATION CONSIDERS EVERY INDIVIDUAL

"Real democracy requires the education of all the citizens—not only the superior and the normal children, but the dull, the lame, the halt, the blind, the handicapped of every type," William J. Bogan, superintendent of schools of the city of Chicago, asserts in the *Chicago Schools Journal*.

The following problems, common to all classes of handicapped children, should receive final recommendations:

1. Systematic and early location of children.
2. Central registration.
3. Equal opportunity for all groups of handicapped children, according to their needs.
4. Scientific and adequate medical care and aftercare going hand in hand with education, neither without the other.
5. Adequate teacher training.
6. Standard educational methods for special classes, so that handicapped children may have education suited to their needs and limited only by their ability to assimilate.
7. Early vocational guidance.
8. Sheltered workshops and adequate service to shut-ins.
9. Publicity, guarded and guided, to insure the best interests of the children.
10. Parental education and guidance.
11. Systematic evaluation of the methods and the results of special education in the system.
12. Study of the costs of special education for the various groups with a view to equalizing state appropriations.
13. Organization, administration and supervision.
14. Prevention.

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THE ERADICATION OF TUBERCULOSIS FROM CATTLE: A PUBLIC HEALTH MEASURE

(Continued from page 620)

human disease. The program has never been built on such strong fundamentals of eradication of disease. Tuberculosis workers have looked on every one as having a little tuberculosis. They have tried to pacify themselves by believing that a slight amount of tuberculosis is a good thing, that it immunizes and protects. They have spoken of this tuberculosis involvement as tuberculous infection indicated by positive tuberculin reaction and have set up a sharp dividing line between tuberculous infection and tuberculous disease. They have done almost no work until this line was passed and the individual was ill from tuberculosis.

The program of the past is similar to an attempt to rid a lawn of dandelions by digging up the plants after the seeds have been scattered. The plants have appeared, the blossoms opened, ripened and seeded themselves. Likewise the tubercle bacilli have produced a positive tuberculin reaction, the development of adult tuberculosis has occurred; then after the patient has become a source of exposure and his best chances of recovery have probably been lost, an attempt is made to "dig up the plant" by treating his disease. The result is that in the human family there is a constant crop of tuberculosis which keeps sanatoriums filled to capacity and spreaders of bacilli in almost every community. The program for the eradication of tuberculosis in cattle in the midwestern states has not been limited to the ill and dying. It has uprooted the disease at its first appearance, not waiting for the blossoms to reveal the presence of the plant to the casual glance of the naked eye, and finally it has prevented even the growth of the seeds which assure a crop next year. The result is that in 75 per cent of the counties of the midwestern states the incidence of positive reactors has been reduced to 0.5 per cent or less, whereas the incidence of positive reactors in the human family, including adults, is 50 per cent or more.

Let us contrast the program of tuberculosis control among animals in England with that of Canada and the United States. In England "the method in the past of dealing with tuberculosis in cattle has involved under the Tuberculosis Orders of 1913 and of 1925 the detection and slaughter of all animals suffering from severe tuberculosis or tuberculosis of the udder." This amounted to the slaughter of extensively dis-

(Continued on page 669)

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Cocomalt is a scientific food concentrate of sucrose, skim milk, selected cocoa, barley, malt extract, flavoring and added Vitamin D. Accepted by the Committee on Foods of the American Medical Association. Sold at grocery and drug stores, or send 10 cents (to cover cost of handling) for trial can to R. B. Davis Co., Dept. K7, Hoboken, N. J.

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For boys and girls whose progress has been hindered or retarded by illness, nervousness, speech defects or inability to adapt themselves to the usual form of instruction. Birchmont, new hall for girls. Illustrated catalog. 1612 Pleasant St., Des Moines, Iowa.

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THE ERADICATION OF TUBERCULOSIS FROM CATTLE: A PUBLIC HEALTH MEASURE

(Continued from page 668)

eased and dangerous animals with no attention being paid to the disease at the planting time, the seedling stage or any other stage until it had reached its maturity. The result is that today it is estimated on the basis of the tuberculin reaction that 40 per cent of the cows in England have foci of tuberculosis in their bodies. As far as man is concerned in England, it is estimated that about 6 per cent of all deaths from tuberculosis is caused by the bovine type of bacillus; that about 2,000 deaths, mostly in children, occur annually from this cause; that at least 4,000 fresh cases of bovine infection develop each year and that an immense amount of suffering and invalidism and often permanent deformity is caused by this bacillus. These estimates are from a recent report of a special committee of the Peoples' League of Great Britain.

In 1915, the time at which England began her program, an entirely different program was outlined in North America. Educational work was necessary; funds had to be appropriated and laws enacted before the work could begin in earnest, but the seed time was taken into consideration as well as every subsequent step in the development of tuberculosis among animals. Tuberculin was known to be a highly specific diagnostic agent. Consequently it was decided not to wait until the animals were suffering from severe tuberculosis or had demonstrable disease of the udder, as was done in England, but instead to look on every positive tuberculin reactor as a present or a potential reservoir of tubercle bacilli and, therefore, a dangerous animal from the standpoint of its animal associates and the human beings who consumed its food products. Such animals were slaughtered, with the result that today, where this plan has been in effect, less than 0.5 per cent of the animals react positively to the tuberculin test, whereas formerly 40 per cent were positive reactors, and in some counties tuberculosis in any form has been completely eradicated.

Valuable public health education has come from this campaign in America. Perhaps no single event has done more to educate the public concerning tuberculosis than the resistance offered to tuberculin testing in certain Iowa counties. The absurdity of such resistance was quickly sensed by newspaper editors throughout the nation, and

(Continued on page 670)

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THE ERADICATION OF TUBERCULOSIS FROM CATTLE: A PUBLIC HEALTH MEASURE

(Continued from page 669)

much publicity, verbal and pictorial, went into the vast majority of the homes in this country through the newspapers. Many who did not even know about tuberculin testing and others who had only vague ideas concerning this subject were informed. The "cow testing war" was common talk throughout the country, so much so that persons entering hotels in large cities wondered whether the dairy products were from tuberculin-tested cattle or whether they were contaminated with tubercle bacilli. Through such education the public will rapidly come to demand dairy products free from tubercle bacilli, living or dead. Already more than 2,000 cities now require that all milk consumed must come from herds known to be free from tuberculosis. Cleveland makes this requirement apply not only to milk but to all milk products consumed, including butter. Other cities are contemplating such action. Apparently the time is not far distant when there will be little if any demand for dairy products from nonaccredited counties. This is public health education work on a large scale in the most effective manner.

SCOUTING HELPS BLIND BOY IN GLEANING KNOWLEDGE

The life of a boy who has lost his eyesight is made up from the information he gleans from his remaining senses. Maurice Blake points out in *The Arrow*, a publication of the British Boy Scouts Association, how scouting can play a valuable part in the blind boy's education, since sense training is one of its prominent features.

By the medium of games in which one is asked to identify a dozen objects differing in shape, smell and texture, such as a piece of carbolic soap, a rag dipped in methylated spirit, a bottle of paraffin, a key, a whistle, strips of calico and velvet and similar items, one unconsciously trains the senses.

The blind boy often has a feeling of helplessness. He is liable to have parents and friends wait on him rather than to learn things for himself. Indiscriminate pity can be more harmful to the growth of character than a little apparent harshness.

Under guidance in scouting, the boy finds that there are an amazing number of everyday things which he can do for himself.

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So—go protected on those week-end trips. Take along a supply of protective Nivea Creme or Nivea Skin Oil. Many doctors and nurses rely on Nivea to keep their hands soft and fit during their work—and recommend it to their patients. Why not follow their expert advice?

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PROGRESS IN PREVENTIVE MEDICINE

(Continued from page 638)

stage may occur in man, and an infected person may reinfect himself by getting the eggs on his hands and into his mouth, and so acquire the encysted form. The cysts are especially liable to be located in the eye or the brain, causing loss of sight, grave nervous symptoms or even death. Measly pork, like measly beef, is not allowed in interstate commerce, but in home-grown pork it may escape destruction. There must be constant education regarding the thorough cooking of pork to destroy the "measle," as it does the encysted trichina.

The dwarf tapeworm, the smallest worm of this type infesting man, is also the most common, although not the one most frequently detected. This is due to its small size (from one-fourth to one-half inch in length). The eggs of this tapeworm may be passed from man to man, and an intermediary host and muscular encystment are not necessary. The parasite closely resembles and may be identical with one commonly found in rats, and there is a possibility that the soiling of food by rats may be a means of transmission. Protection of food from fecal contamination by rats or persons and good personal hygiene on the part of food handlers and infected persons should prevent its spread.

The broad Russian tapeworm passes one stage of its development in fresh-water fish, the uncooked or smoked flesh of which is ingested by man, and in him develops into a worm about 30 feet long and produces an anemia of pernicious type. This parasite is of fairly recent introduction to America, but many fish in our northern lakes are now infested with its larval stage. Cooking destroys it, and fish should only be eaten cooked, never raw or merely smoked or pickled.

Another tapeworm highly dangerous to man and common in some countries, notably in Iceland, Argentina and Australia, passes its intestinal stage in the dog. If man, by reason of his close association with dogs having such parasites, ingests the eggs, they hatch and the larvae seek the liver, brain, heart or other organ, there to encyst. These cysts may attain enormous dimensions, form "daughter" cysts and eventually destroy the organ in which they form, or destroy life by pressure on vital centers. Children and adults should be educated to avoid promiscuous handling of dogs and particularly to avoid their kisses, as

(Continued on page 671)

FOR YOUNG MOTHERS—
Maiden Form's

Short NURSING BANDEAU

For mothers who require a nursing brassiere but do not need diaphragm control—this bandeau is *scientifically* designed to give *perfect* bust support, yet to allow complete freedom below. Of porous, flesh-colored cotton mesh, it has breast shields of rubber and absorbent fabric with narrow tape holders for pads of sanitary gauze. The center fronts unfasten at the shoulder straps—for easy access to the breasts. No. 382—$1.00.

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PROGRESS IN PREVENTIVE MEDICINE

(Continued from page 670)

it is the dog's nature to lick many things, including his own anus; and if he has a tapeworm, his caresses may convey its eggs.

It is to be remembered that the eggs of all the intestinal worms are microscopic in size and that they can never be detected by the naked eye.

The trematodes comprise another group of worms which infest man, usually with serious results. These are Old World parasites, almost unknown to man in America. All the flukes have a complicated life history, many requiring three hosts in order to complete their life cycle; but most of them reach man through the eating of uncooked mollusks, crabs and other shell-fish. Moses' injunction that "all that have not fins and scales in the waters, in the seas and in the rivers shall be an abomination unto you" or, in lieu thereof, sound and thorough cookery will protect against most of them.

One group of them, however, the blood flukes common in Egypt and some parts of the Orient, and less so in South Africa and the West Indies, are acquired by wading, bathing or other contact with waters polluted with egg-bearing feces. In these waters the flukes pass stages of their existence in certain snails, after which they penetrate the skin of persons exposed to the waters and pass to the deep veins, especially in the liver. There they reach adult life, copulate, and discharge enormous numbers of sharp-spined eggs which pass out in the urine and stools, again to enter the water and start a new cycle. These parasites cause severe symptoms and great suffering. Prevention in infected regions consists of the prevention of contamination of water supplies and the use of boiled water for drinking and bathing. In the United States the use of the cold shower is still safe.

Observation and experimentation have resulted in practical measures for the prevention of parasitic worms. The measures have already produced great results, and infestation with worms is consequently becoming more and more rare. Education has done wonders in this field of preventive medicine. It can do more. The public must be educated as to the known facts and must be warned against straying after false theories, however beguiling they may be.

[NOTE.—In the August issue, Dr. Ashburn will discuss various respiratory diseases.]

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THE POSSIBILITY OF
GOITER
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ACCEPTANCE of Morton's Iodized Salt by the Committee on Foods of the American Medical Association is definite assurance that, if used daily on the table and in cooking, it will protect your children against simple goiter resulting from insufficient iodine in the diet.

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